

LOUDEN BARN PLAN BOOK

A black and white photograph capturing the interior of a barn under construction. The structure features a prominent arched roof supported by a series of curved wooden beams. The floor is covered with wooden joists and some debris. Several workers are visible throughout the space; one is seated near the center, while others stand at various points. Large windows are visible in the background, allowing light to illuminate the interior. The exterior of the barn is visible through the windows, showing a landscape with trees and hills.



Today a few men can raise the frame of the largest barn. No need to call on all the neighbors for help. The barn at the right is the same barn shown on the front cover of this book

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Mighty Important Business

Important because it means the investment of quite a little money.

Important because a man builds a barn, or makes extensive improvements in his old one, about once a lifetime.

Important because he has to abide by the results—good or bad—for the rest of his working life.

Important because he has just this one time to do the job—one opportunity to do it right.



IMPROVEMENTS

We wish we could help every reader to a full appreciation of his need of a well planned barn.

Let's consider that need from one angle alone—the time it takes each year to do the barn chores.

Suppose, for example, you can cut the time required to care for a cow **only 3 minutes a day**. That means, in just a 20-cow herd, one hour a day—a month's working time a year—**ONE YEAR'S TIME IN EVERY TWELVE**.

And by good planning, as compared with poor, such a

saving is easily possible. Proper arrangement of stock, silo, feed room and hay chutes will save thousands of steps in feeding. The right arrangements for watering, handling the milk and cleaning out the manure will save more time.

Time is important in any man's life and no one can afford to waste it. You begin to realize that fact when you get up to middle age. Opportunities for saving time in the field are seldom overlooked. But what have you done, in all your life, about saving time in the barn?

The Factory on the Farm

This modernized barn of Marshall Jones, Westtown, Pennsylvania has the appearance of a going concern—a well organized factory for producing milk, which, in fact, it is.

Louden equipped, for efficient operation, since 1924.



To Build a First Have a



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Good barns don't just happen. They result from carefully made plans, worked out in advance to suit the particular requirements—the size of the herd, the breed of the stock, the sanitary regulations, the lay of the land, the geographical location and a great many other things.

You can't be too careful, or too thorough with the details, in figuring out and drawing the plans for your barn before you start to build. It costs nothing to make changes on paper. Quite the contrary when the carpenter or the contractor has to make them.

Good plans show in detail proper construction and bracing to withstand all kinds of weather and the passing of years. They utilize lumber in economical sizes and lengths—show how to use it to best advantage and with the least waste.

They provide adequate capacity for storage of the amounts of feed required.

They show on the floor plan how to arrange all units in proper size and to best advantage from every standpoint.

The suggestions that follow, when you turn the page, indicate the many things, big and little, that a man should know to properly plan a good barn. On many of these points knowledge must be mixed with experience to be of specific value.

As a matter of fact, planning a modern barn is hardly a job you can trust to any-

1. The great dairy barn at Fentonbrook and Hurlwood Holstein Farms, Great Barrington, Massachusetts, built from Louden working plans, has many unusual features of interior arrangement—third floor driveway into mow, convenient root storage, etc.

2. This Louden planned isolation barn at Franchester Farms, Ravenna, Ohio, has a driveway into the mow from one side.

3. Barn built by Clark Ednie, Goshen, Indiana, which was under way when the Louden man came along. However, he was in time to be of considerable service in planning the interior arrangement.

4. A nice 20-cow barn, Louden planned, built by C. E. Maurer, Ravenna, Ohio, which will be standing there many years from now.

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Good BARN Good PLAN

one with limited experience, or for which even you yourself will want to take full responsibility. Unless, of course, you can afford to gamble for high stakes and possibly lose.

Most of us know something about the other fellow's job. We know a little about the law, a little about how to doctor ourselves, a little about how a barn ought to be built and arranged.

But when we go to law we want a lawyer at our side; when our own treatments fail, we want to doctor; and before we actually put our money into a barn we want someone with much more experience than ourselves to make the plans for us or to check and double check with us the plans we have made ourselves.

When we need it, we turn to specialized counsel for advice.

Every town has its doctor. Every county seat, at least, has its lawyers. But where can one find specialized barn plan help—there was a time when that was a question.

It has been no question, for those who knew, since the Louden Barn Plan Department was established a good many years ago.

Further on in this book you will learn more about this Department and the experienced barn plan help it offers you for the asking.



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5. Southern type of barn at Hillcrest Farms, Picayune, Mississippi. "All three of our barns and the one at Crowrow are Louden equipped. Well pleased," writes Mr. R. H. Crosby of Hillcrest.

6. Southern California type. One of several Louden equipped barns at the Los Angeles County Farm at Hondo.

7. Unusual in many respects—driveway into end of mow, hot and cold water in pens and many other features—is the Louden equipped dairy barn of J. T. Lybarger, Hood River, Oregon.

8. The small Louden planned barn of Mr. G. D. Gregory at Averill Park, New York. "I think you have given me a very handsome barn," he says, "and the Louden equipment is working splendidly."



on Planning the Dairy Barn

The plan, construction, and equipment of a dairy barn should receive careful consideration and study in order that the building may best serve its purpose, and also to avoid as far as possible having to make expensive alterations which otherwise might become desirable or necessary.

A well-planned and equipped barn saves time and labor for the farmer, and provides comfortable quarters for the cows, while the poorly planned barn is a daily source of annoyance and of wasted time and energy. It is important, then, that dairymen become familiar with the best principles of barn construction and the most satisfactory types of equipment, before building or remodeling their barns.

—U. S. Department of Agriculture.

Locating the Barn

In planning the dairy barn the first point to consider is its location. The site should be well drained and the barnyard should slope away from the barn. Plenty of fall will thus be given the drains and surface water will quickly run off.

Facilities for getting hay and feed into the barn, the convenience of the barn to pastures and other farm buildings and to the road, also the possibility of making future additions, if needed, are of prime importance in locating the barn. We would place them ahead of an inflexible rule for a North-South location. Always bear in mind, too, that if good, the appearance of the farmstead after the barn is built will greatly magnify the value of the improvements.

Consider Milk Ordinances

Milk ordinances in some sections prohibit the housing of horses and cows in the same building. In other instances this is permissible, provided a tight wall separ-

ates the horse and cow quarters. Investigate the ordinances of your present and possible future markets before you build.

Type of Barn

The one-story barn is common in the south, where there is no problem of feed storage or cold weather.

In less temperate climates the two-story barn is the rule. It provides loft space for the storage of hay, straw and grain, is more convenient for feeding and is likely to be cooler in summer and warmer in winter.

Surface Barns or Bank Barns

According to most authorities, surface barns are preferable to bank barns. Bank barns are frequently damp, poorly lighted and ventilated. It is also felt that a driveway into the hay mow—which is usually provided in bank barns—is a waste of expensive barn space.

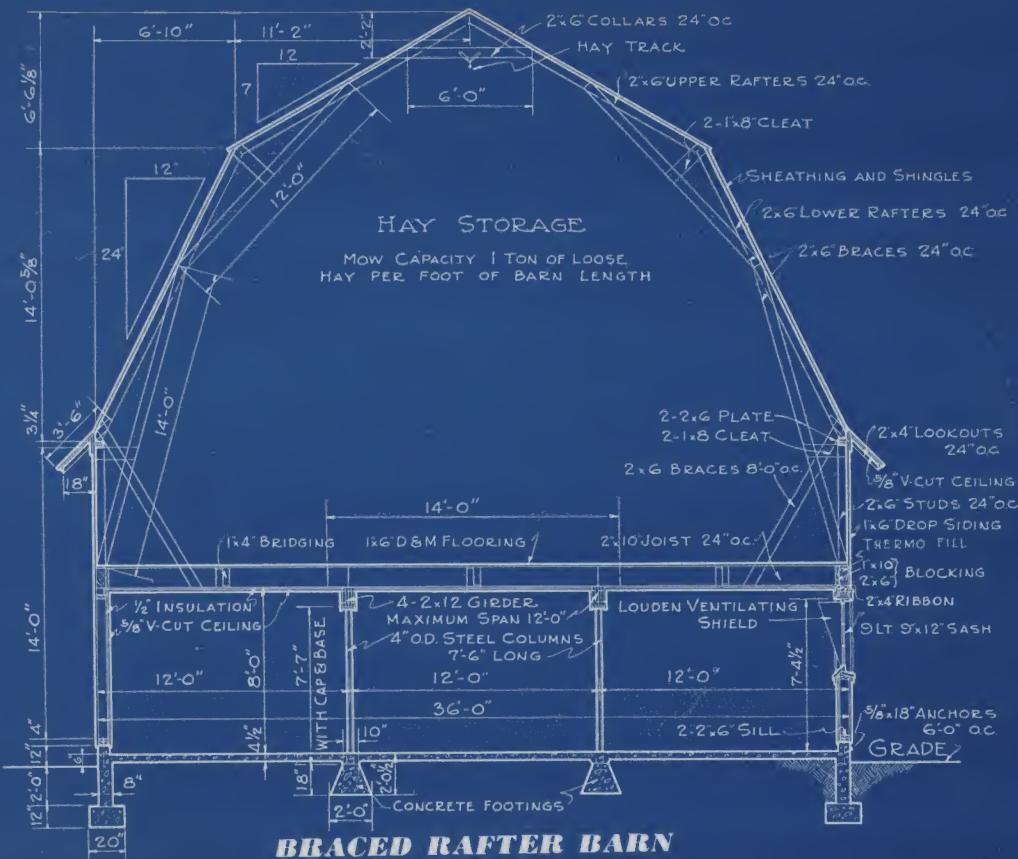
However, in most rolling sections, bank barns continue in common use and driveways from the higher ground into the mow frequently fit into long established farming methods. One thing is important when bank barns are built. Tile should be placed at the foot of the bank side wall, to avoid seepage through the walls as a result of static pressure.

Shape of Barn

The rectangular barn is the most satisfactory design. It can be readily extended if desired and is best adapted to economical arrangement of stock and equipment. To avoid excessive length and thus save time in doing the work, the barn may be built L-shaped, T-shaped or U-shaped.

Round barns are very substantial but difficult to build, arrange and ventilate. Additions are a problem.

Braced Rafter Barn



Provides more mow space than gable roof barns and has no timbers in mow to support roof. Costs less to build per ton of hay storage capacity.

The braced rafters are spaced 24" apart and are built of stock framing lumber designed, in different sized barns, to cut from standard lengths with minimum waste.

More popular and more economical to build than other types of gambrel roofs in barns to 36 ft. and even 38 ft. width and with studs extending up to 10 ft. above mow floor level.

This distance will not clear a loaded hay wagon, hence for driveway into mow at floor level a gable entrance is required to obtain needed headroom.

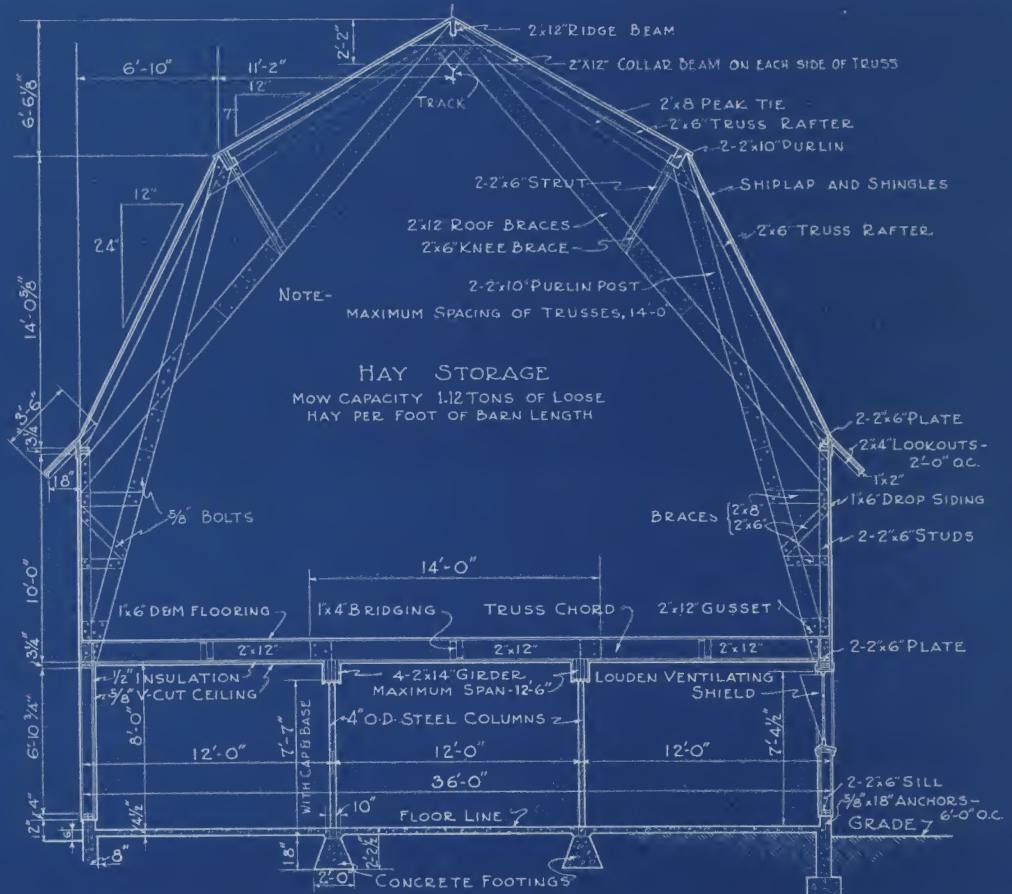
Plank Truss Barn

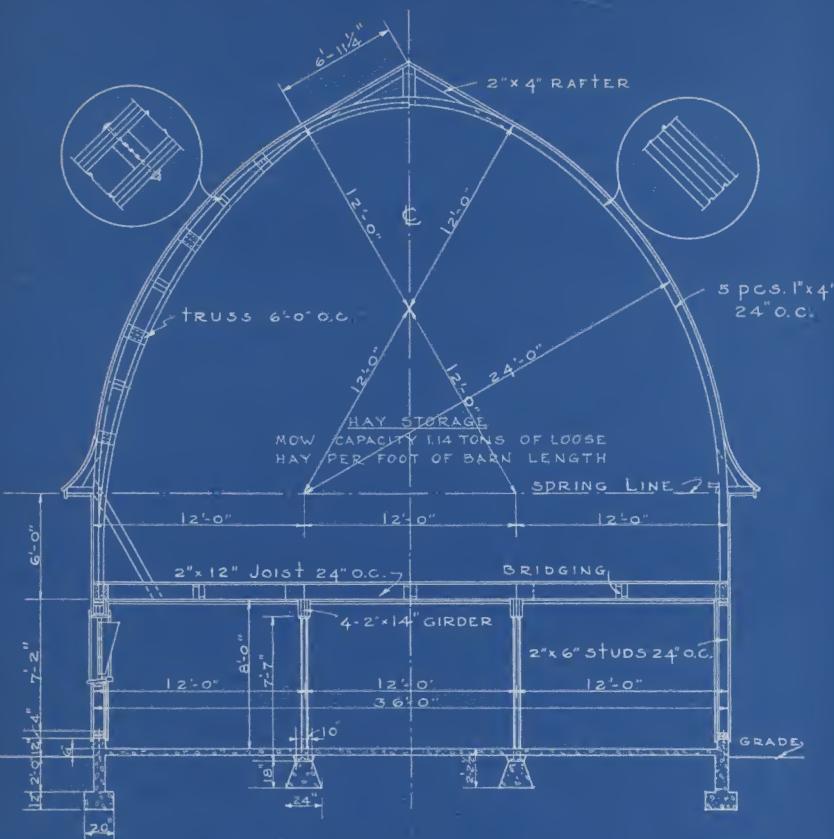
Also known as the "Shawver Truss." Somewhat more expensive than the braced rafter roof and the trusses offer more interference in mow.

Trusses are built of heavy plank, are spaced 12 to 16 ft. apart and carry the entire roof load.

Studs may extend as much as 20 ft. above mow floor as against a maximum of 10 ft. with the braced rafter barn. Greater mow space can be provided, if needed, than with braced rafter roof. Driveway into mow may be had without dormer construction.

Plank trussed barns are very strong and are favored in sections where terrific winds are not infrequent.





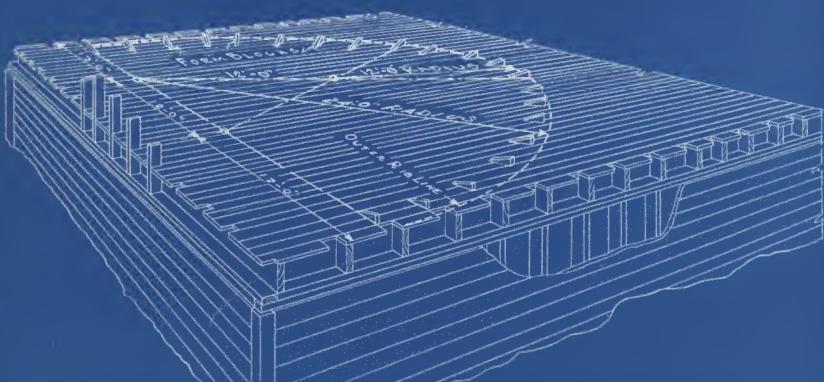
Gothic Roof Barn

To simplify construction and to use lower priced lumber our engineers designed AND PATENTED the method of gothic rib construction whereby the rafters are built up of five 1" x 4" boards, bent to proper curvature and nailed and bolted together.

These ribs are continuous from plate to plate—not broken and tied together at the peak. They are erected 24" apart and a trussed rib used at every 2d, 3d or 4th rafter, depending on the height and span of the roof.

You are welcome to use this method of construction, without cost. Write for blueprints showing details.

Striking in appearance, the gothic roof offers maximum snow capacity with practically all clear space. It sheds rain and snow and withstands heavy winds.



Nailing blocks on the mow floor, for quickly and easily building up ribs of uniform size and shape.

Foundation

Foundation wall's are usually about 8 inches wide for frame buildings. Footings must carry the weight of the building and should be wide enough and deep enough to prevent the building from settling and to avoid heaving and cracking. The proper depth for footings varies with the texture of the soil, the latitude of the location and the weight of the building. Masonry walls are heavier than frame. A two-story barn requires wider footings than a one-story building.

Approximate widths recommended for footings are from 16 to 24 inches for two-story barns and from 12 to 16 inches for one-story. An average depth is from two feet in southern states to four feet in the extreme north. However, the soil conformation in many sections is such that this depth may be considerably reduced.

Footings for columns within the foundation walls should be ample to support the load but need not be as deep as the foundation footings, provided they go down to a solid bearing.

Walls

Walls may be of frame or masonry and should be impervious to cold. Moisture from stable air will condense on cold walls, even though the building may be well ventilated. When walls and ceiling are well insulated, a good ventilating system will prevent condensation and consequent rotting of the timbers.

In mild climates siding and sheathing are sufficient. The more severe the winters, the better the wall and ceiling construction must be. In far northern sections a frame wall should consist of tight siding over sheathing on the outside of the studding and tight sheathing over insulating board on the inside.

Windows

Sunshine is a great germicide and costs nothing. But, at the same time, excessive window glass area causes waste of heat that is needed to keep the barn warm.

One square foot of glass per 25 square feet of floor space is recommended in most sections. It may, however, be necessary to increase or decrease this amount, depending on the number of animals housed. Windows should be higher than wide and should be placed $3\frac{1}{2}$ to 4 feet above the floor. They should be single sash and built to swing in at the top, with metal side shields. In cold climates use storm sash in winter.

In building or remodeling a dairy barn, always consult your milk ordinances as to window requirements. The amount of glass area required per cow varies materially in various parts of the country. While normally $3\frac{1}{2}$ to 4 square feet per cow is sufficient, in some states 6 square feet are required.

Roof Construction

Gable roofs are usually used for one-story barns when little or no loft space is required for storage.

The monitor roof is popular in southern California and is also used in other sections where no mow storage space is required and for coolness in summer. This type of roof should never be used in the north, as it is too cold in winter.

Two-story barns requiring maximum hay storage space are usually built with gambrel

roof or with the increasingly popular gothic, or arched, type of roof.

When barns were commonly built with heavy timber frames, the roof was supported by posts extending up through the mow. These posts and their connecting beams interfered with the storage and handling of hay. As heavy timbers became more and more expensive, the self-supported roof was developed, to permit the use of small dimension lumber.

Gambrel Roof

Under the gambrel classification there are two types of self-supported construction—the Shawver truss and the braced rafter—both built of 2-inch lumber.

The Shawver truss construction is very strong and is recommended over the braced rafter construction for very wide and high barns in areas where winds reach cyclonic intensity. Bents are formed in the mow by the trusses, which are placed from 10 to 14 feet apart on centers. The chief disadvantage of this construction is the long lengths required for purlin posts and roof braces, which are not commonly carried in stock at lumber yards.

The braced rafter roof, when properly planned, is built of stock sizes of framing lumber, designed in different size barns to cut from standard lengths with as little waste as possible. Each rafter is properly braced and they are spaced every two feet. This roof can be built wide and high and will stand ordinary heavy wind storms. It is a little more economical to build than the Shawver truss.

Gothic Roof

The gothic roof presents an attractive appearance and gives maximum uninterrupted mow space. There are two ways to construct the gothic rafter.

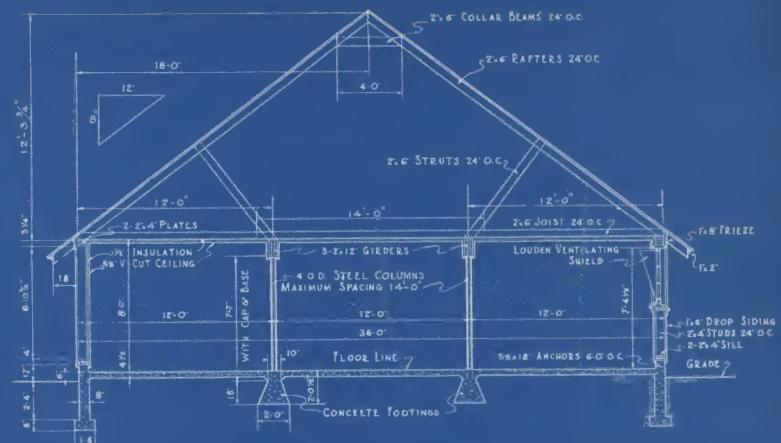
One way is to saw 10 or 12-foot lengths of 1x10's or 1x12's into curved lengths, which are then nailed together to build up the curved rafter. The other way, which requires less work, saves time and results in less waste of lumber, is to bend standard 1x4 boards to proper shape around nailing blocks on the mow floor, breaking the joints and nailing and bolting the five thicknesses together. Every second, third or fourth rafter is built up of six thicknesses of 1x4's and trussed and bolted as shown on the front cover of this book.

This bent board type of laminated rafter construction was developed by Louden. It should always be used with the reinforced rib at proper intervals.

While the sawed type of gothic roof rib, first described, is usually broken at the ridge and held together by a collar, the bent board type extends unbroken over the top, from one side to the other, with short rafters nailed tangent to the curve to form the peak. These are tied with a 1x8 vertical cleat to the center of the curved rib. This construction adds to the strength of the rafter and carries the hay carrier loads with less strain on the ribs.

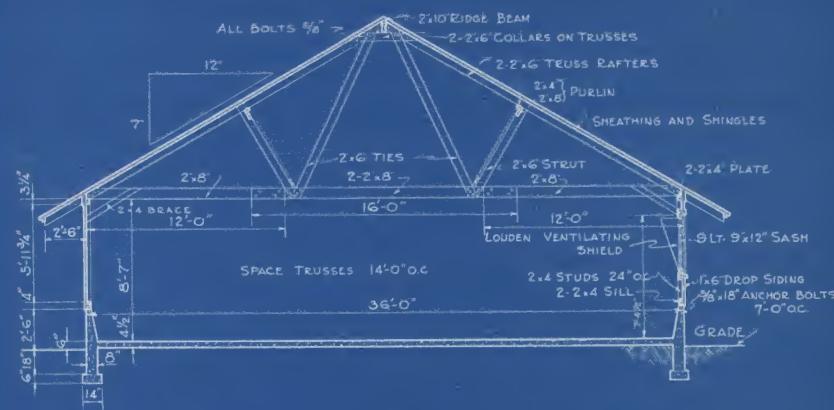
Ribs are spaced every two feet, and are raised by a light block and tackle. Each rafter should be braced by a double 2x6, spiked to truss and floor joists.

The bent rib gothic usually makes a more gracefully curved roof than the sawed rib gothic.



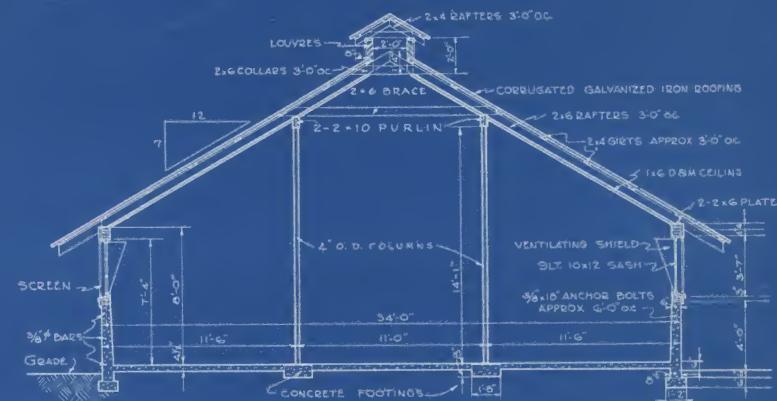
One-Story Barn — Northern

A practical design for northern climates, with an eye to economical construction. Closed ceiling. Popular for one-story wing to main barn. Cross sectional blueprints on request.



One-Story Barn — Southern

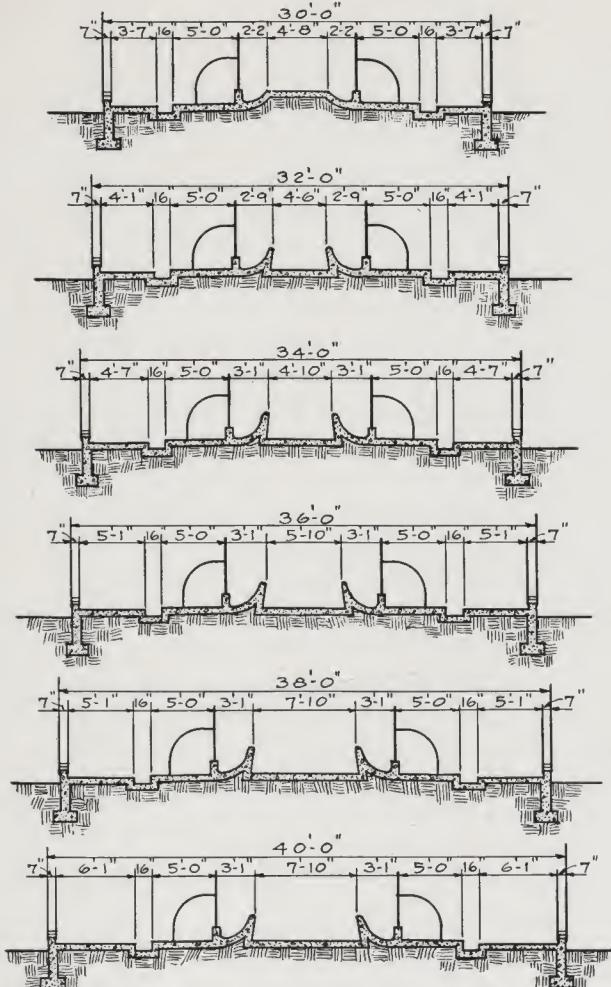
Design for a low-cost, unceiled southern structure, with truss supported roof. No columns below. High ceiling to let out hot air. Blueprints furnished on request.



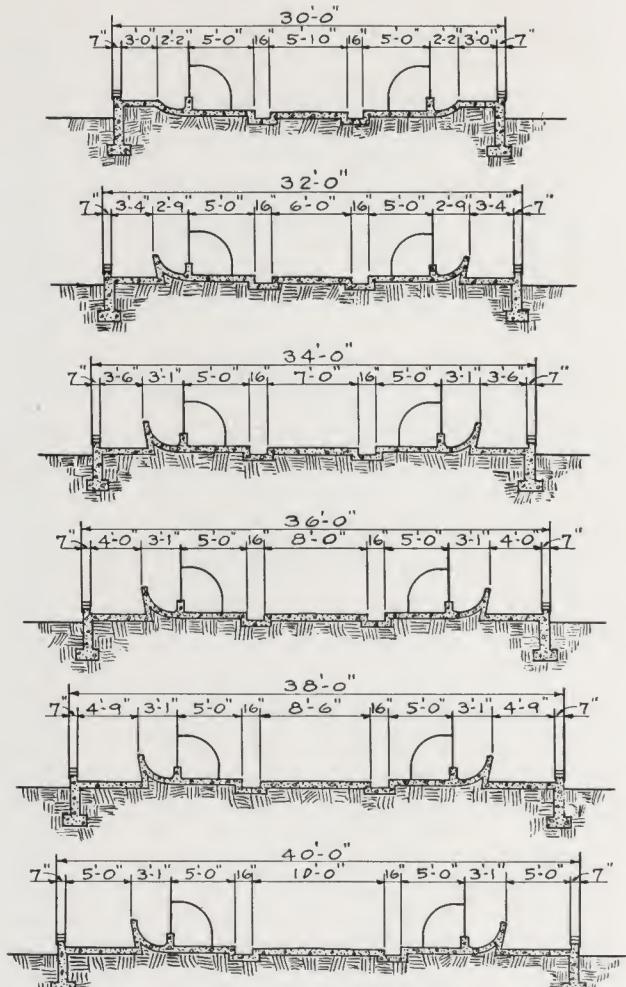
California Type

Post supported design with ventilating louvres the length of the ridge. Ceiled on under side of rafters with open space at top and bottom. Flue thus formed carries out hot air coming through roof. Wide eaves protect side walls and windows from sun.

Blueprints showing details may be had without charge.



Barn floor sections—cows headed in.



Barn floor sections—cows headed out.

Width of Barn

For a barn with two rows of stalls extending lengthwise, a width of 36 feet is recommended, although 34 feet does very well. In stables narrower than this, the feed and litter alleys are crowded.

Floor sections for barns 30 to 40 feet wide are shown above, for cows headed in and out.

Ceiling Height

The ceiling for cow stables should be 8 feet above the floor level, in northern states. In southern states the roof is usually the ceiling. The cubic content of the stable should be from 600 to 700 cubic feet per cow in colder sections, to help maintain proper inside temperatures and effective ventilation in winter.

Heads Cows In or Out

This is a matter of choice. **Headed in** is more convenient for feeding; light falls on gutters; cows do not face it; supporting columns may be in stall row.

Headed out, cleaning is done from a single alleyway and less litter carrier track is required; light falls on the mangers; walls are not spattered by droppings; more sociable arrangement for milkers; cows more readily shown to purchasers.

Stall Dimensions

Proper stall dimensions are very important in keeping the cows clean and comfortable. Experience shows the following table to be about right for the weights of cows indicated:

Breed	Lbs. Wt.	Stall Length	Stall Width
Jersey	900	4'-6"	3'-5"
Guernsey	1000	4'-8"	3'-6"
Ayrshire	1000	4'-8"	3'-6"
Brown Swiss	1200	5'-0"	3'-8"
Holstein	1200	5'-0"	3'-8"
Milking Shorthorn	1800	6'-0"	4'-2"

(Stall length from center of curb to edge of gutter)

Weights of cows and stall dimensions required vary not only with the breed but with individuals within the breed. Northern Holsteins, for example, usually run larger than those in the south.

Stall lengths for cows weighing more or less than shown in the above table can be determined by means of the following formula, evolved at Iowa State College after a study of the weight and length of dairy cows:

$$L = \frac{W}{50} + 36 \text{ inches}$$

That is, stall length in inches equals weight of cow in pounds divided by 50, plus 36 inches. For example, a cow weighs 800 lbs.—divided by 50 equals 16, plus 36 makes 52 inches stall length.

Adjusting the Stall Length

To make adjustments in the stall to suit the different lengths of cows there is a choice of two methods:

One is to adjust the stanchion backward or forward

by means of adjustment devices attached to the curb and to the top rail of the stall. Objections to this method are that the curb device, when set for a short cow, projects back sharply beyond the curb and offers chance for injury to the cow's breast; and when set ahead to project toward the manger, as for a long cow, there is danger of the cow getting her foot caught and injured between the curb and the stanchion.

The other method of providing adjustment is to taper the stall platform, making it a few inches longer at one end of the stall row than at the other. The cows can then be arranged in the stalls according to size. This is a sensible plan because it is simpler, cheaper, safer and the distance from curb to gutter actually suits the cow's length. A further advantage is that the herd presents a better and more uniform appearance than when long and short cows stand side by side.

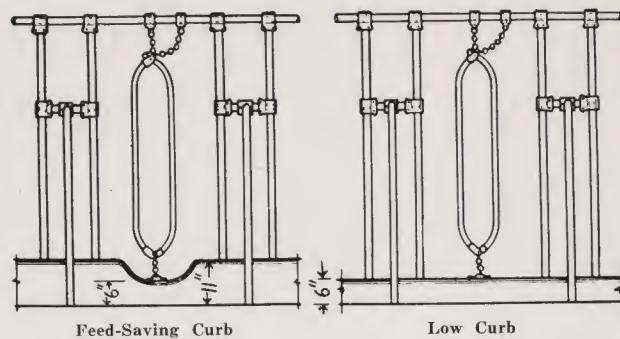
Mangers

Mangers should be made of concrete and troweled to a very smooth surface; a rough concrete finish is hard to keep clean and likely to become unsanitary.

The bottom should be 1 inch higher than the platform level at the curb and the width should be not less than 26 inches nor more than 37 inches overall, measuring from the center of the stall post. (See cross sections below.)

Manger drains should be located not over 50 feet apart. A slope of 1½ or 2 inches in 50 feet should be allowed, for cleaning. As a general rule the same number of gutter and manger drains are used and they are located opposite each other.

Stationary manger divisions between cows are not desirable because there are too many corners to try to keep clean. Divisions should be hinged, so they can



be raised, allowing the entire manger to be swept or scrubbed out when needed.

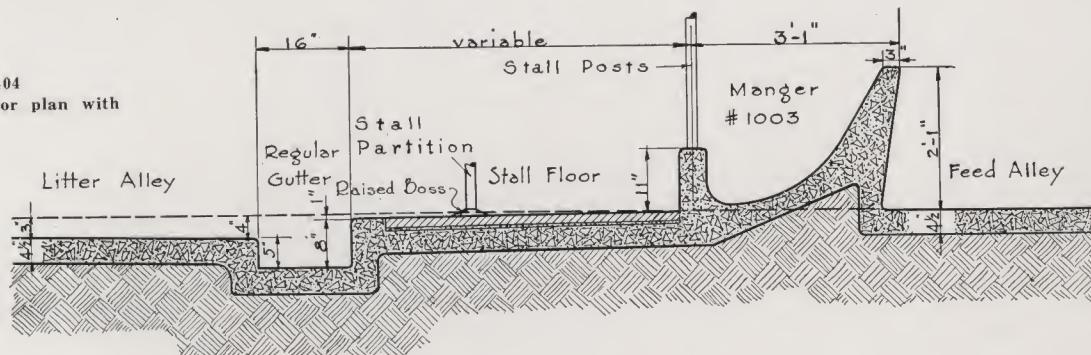
Templets for forming the curve of the manger should be obtained from the manufacturer whose manger divisions are being used.

Curb

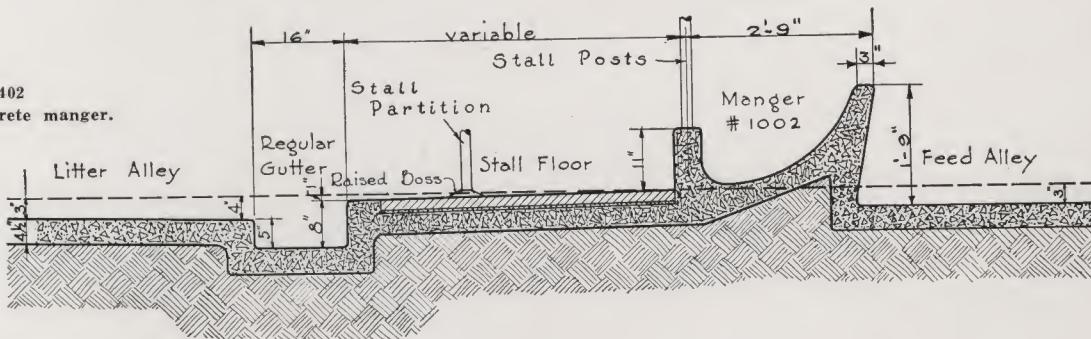
The curb, between manger and stall platform, should be 5 inches wide. It should be 6 inches high at the point where the stanchion is anchored. When the entire curb is built only 6 inches high it is called a low-level curb.

What is known as the "feed-saving" curb has become most popular. The extreme height of this curb is 11 inches but it curves down at each stanchion place to a height of 6 inches—the same height as the low-level curb. A curb height of 11 inches at each side of the cow keeps her from working feed back over it to be wasted on the stall floor, as is so easily done when the curb is

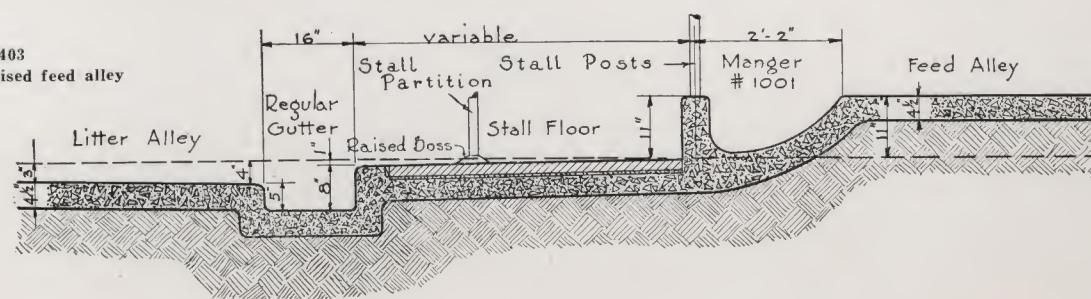
Cut No. 1404
Cross section of floor plan with extra high manger.



Cut No. 1402
Ordinary high concrete manger.



Cut No. 1403
Low manger and raised feed alley floor.



no more than 6 inches high at any point. The extra concrete required will be paid for many times by the amount of feed saved as time goes on.

Gutters

The gutter should be 16 inches wide. It should be 8 inches deep next to the stall platform and 5 inches deep next to the litter alley, to provide adequate capacity. In addition, it should have a slope of 1 inch to 10 feet of run. If more than 25 feet of gutter is laid to this grade it will become deeper than desirable at the low point. Therefore, keep the runs under 25 feet long. Two such runs may be served by a single drain. Maximum distance between drains should be 50 feet.

Feed Alleys

Feed alleys should be wide enough to permit the passage of feed trucks or feed carriers, which are essential equipment for quick and easy feeding. Provision for their use should be made when the barn is built. Feed alleys should be at least 4 feet wide. Cross walks, which these carriers must traverse, should also allow sufficient width for their passage and for the truck or carrier to turn the corners.

Litter Alleys

When cows are headed in, the litter alleys should be not less than 4½ feet wide; 5 feet is better. When cows head out, an alley 7 feet wide will prove satisfactory, although 8 feet is preferred by some herdsmen and is required by milk regulations in most localities in the southern states.

Locating the Floor Levels

Locating the floor levels properly is one of the most important steps in building the barn.

The key level is that of the litter alley floor. This level should be the same as the door sill, with a slope of 1 inch toward the gutter. The door sill should not be raised and there should be no more than 2 inches of drop on the outside.

The level of the stall floor, or standing platform, at the curb should be 4 inches above the litter alley level at the gutter. Thus the stall floor will have a 1-inch slope from curb to gutter.

The level of the feed alley floor is a matter of choice. It may be level with the stall floor, as shown in Cut No. 1404; level with the litter alley floor, as shown in Cut No. 1402; or level with the top of the manger, as in Cut No. 1403. (See page 9).

Pen floor levels are usually established at the level of the litter alley or the feed alley, depending on the arrangement. A curb 5 inches high is used around each pen except at the gate. This curb must be made level, regardless of the slope of the floor.

The concrete in the barn floor is usually laid 4½ inches thick. Therefore the ground levels must be established 4½ inches below the finished floor levels before the concrete is put in.

Types and Sizes of Pens

Cow pens are essential in the modern dairy barn, for sick animals and for cows that are calving. The cow pen should have not less than 100 square feet of floor space. 9 x 12 ft., 8 or 9 x 13 ft., or 9 x 14 ft. are good sizes, depending somewhat on the breed of cows. 9 x 14 ft. is the ideal in most cases for maternity purposes.

The wall of the barn is usually used for one side of the pen, saving that much steel panel. Each pen should be equipped with a gate, drain, water bowl, salt cup and feed manger. The manger may be of concrete or of the metal box type which tips in for feeding and is afterwards tilted back out of the pen.

Bull pens should be at least 10 x 12 ft. but 12 x 12 ft. or 12 x 14 ft. are better. The steel panel in such pens is

higher than in cow pens and each filler should be set in solid concrete for necessary strength and safety. It is not so safe to depend on two or three vertical posts extending into the concrete to hold the entire side of a bull pen. A corner manger with heavy stanchion is also provided in bull pens. The water bowl and salt cup may be placed inside the corner manger and a drain is necessary in both pen and manger. An outside entrance is frequently provided for bull pens, for easy access to the exercise yard.

Calf pens may vary in shape and size, according to the number of calves, but a minimum of 16 to 20 square feet of floor space per calf is recommended; 25 to 35 square feet each for calves 6 months old or older. A water bow, salt cup and drain are as necessary as in the cow and bull pens. Concrete mangers are provided and stanchions are built into the front panel of the pen. With modern steel equipment these stanchions may be operated individually or all together. Folding guards, to prevent ear sucking, are recommended for use between stanchions.

Water Supply

Water supply lines for individual water bowls are installed in several ways. The pipe may be installed close to the curb and just under the concrete when the stall floor is laid. Other methods are to clamp the supply pipe to the top rail of the stalls, or to support it close to the ceiling, with supply lines coming down to each bowl.

The use of individual water bowls is recommended over running water in the manger. There is less danger of spreading disease and with a drink at hand whenever they need it, day or night, the extra milk the cows produce will pay for the bowls within a year. This applies to both northern and southern conditions.

Feed Storage

A feed room adjoining the barn is convenient and saves a great deal of time. It is frequently located between the silo and the live stock room. Because the barn furnishes one wall and the silo or silos a part of another, it costs less per square foot of floor space than an equal amount of space in the barn. If of two-story design, grain can be stored on a floor above and a feed grinder installed below. By having such a room any cow which might roam the barn loose is unable to reach the feed and founder herself. The silage chute can be located in the feed room and by spotting the feed truck under it much re-forking can be saved.

Ventilation

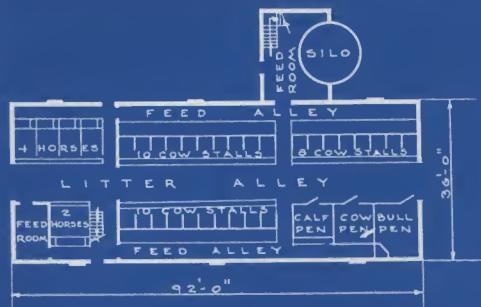
Fresh air is as important to livestock as to humans. Farmers are less subject to tuberculosis than office workers, simply because they are out in the fresh air most of the time and are not so closely housed.

Ventilating the barn is a problem for an experienced ventilation engineer. The principles of ventilation may be readily understood but, as the U. S. Department of Agriculture says: "—their application is still so largely a matter of judgment and experience that it is not possible for every farmer to be his own ventilation engineer."

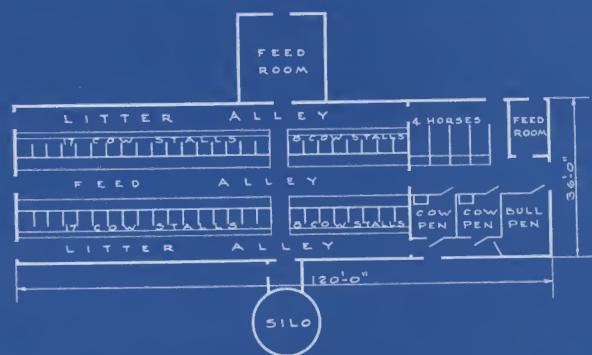
To attempt to build a ventilating system without experience or a thorough understanding of the principles involved, is usually a waste of money.

IF YOU ARE INTERESTED—

in an intelligent discussion of the subject of Ventilation, write for a free copy of the Louden Ventilation Book.



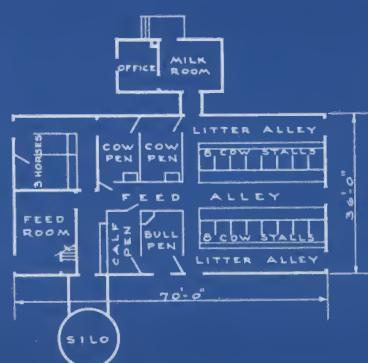
St. Francis Convent, Little Falls, Minn.



T. H. Smith, Roxbury, N.Y.

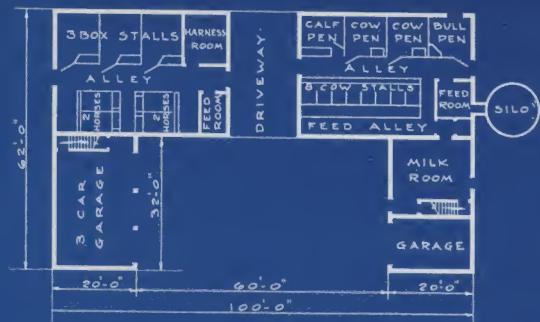
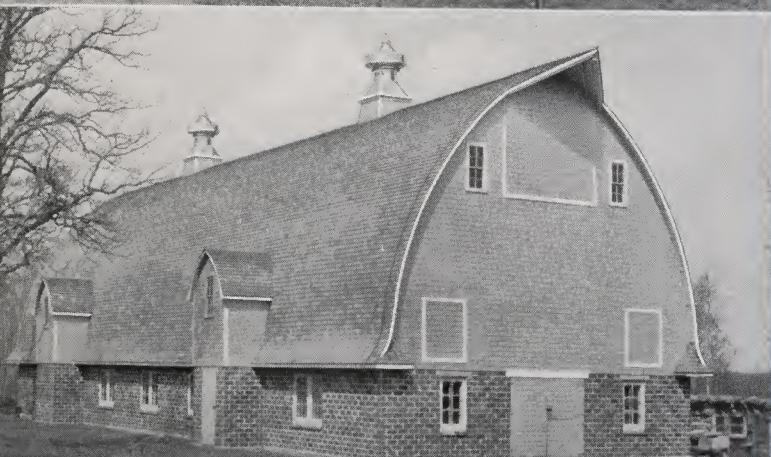


R.B. McDonald
Moline, Ill.

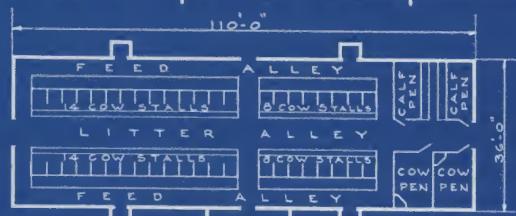


R.M. Martin
Delaware, Ohio.



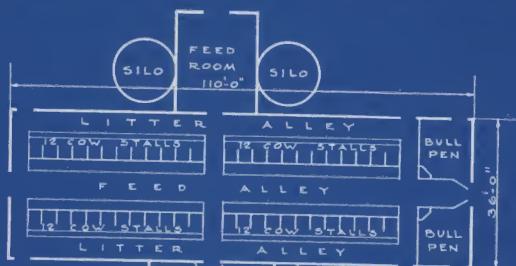


Mrs. M.K. Reynolds, Marquette, Mich.

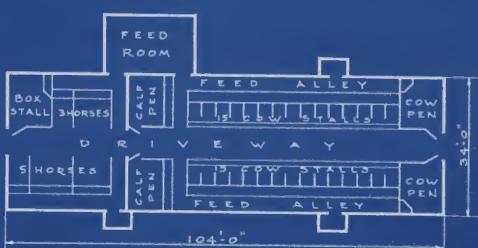


Wild Rice Lutheran
Children's Home

Twin Valley,
Minn.



Benjamin Brown
Slocum,
R. I.



O. J. Ramsey, McIntosh, Minn.



Some Important Facts to Know When You Build Your Barn



It pays to build well and to take care of property, if you are going to use it or continue to own it. Therefore, when you build your barn, you will want to be on guard against those points of weakness in construction and maintenance pointed out by the University of Missouri after a study of farm building depreciation in that state.

POINTS OF FAILURE IN BARNS AND CONTRIBUTING CAUSES Both In Order of Importance

- 1— Sills and Connected Framing.
 - a- Lack of care of roof and yard drainage.
 - b- Foundations too low.
 - c- Size or depth of footings inadequate.
 - d- Inferior or damaged siding.
- 2— Foundations.
 - a- Lack of drainage.
 - b- Erosion from roof or yard drainage.
 - c- Inferior design.
 - d- Poor quality of materials.
- 3— Siding and Doors.
 - a- Lack of care of roof drainage.
 - b- Failure of sills and framing.
 - c- Lack of paint.
 - d- Splice joints not water-proof.
 - e- Injury by stock or equipment.
 - f- Inferior workmanship.
- 4— Roof Covering.
 - a- Inferior quality.
 - b- Poor selection.
 - c- Inferior application.
- 5— Roof Trusses.
 - a- Inferior design.
 - b- Failure of joints.
- 6— Joists and Girders.
 - a- Overloading.
 - b- Failure of nailed joints.

This same investigation also showed that it is a good idea to spout the barn. Annual depreciation in unpainted barns ran 2.32% as against only 1.64% when spouted, which means a 41% increase in the life of spouted buildings, due to proper facilities for handling runoff water and preventing damage to the building.

Then there is the matter of foundation height. When under 8 inches high, the annual depreciation rate was 3.26%, but only 2.28% when the height was 8 inches or more—43% longer life. Keep the sills up off the ground.

Lack of paint also causes rapid depreciation in property. Unpainted barns gave 37.06 years of service; those painted when built but not afterwards gave 45.86 years of service—21% longer life—and those painted as needed gave 53.19 years

of service—43.5% longer life than the unpainted barn. To say nothing of the better appearance of the painted property.

The Question of Cost

Many an old farmer, with a sturdy barn still standing after half a century of use, will tell you that at the time he built it his neighbors told him he was building too well and putting too much money in it. Today the price he paid for the building sounds cheap and he still has a barn that will last for many years. Time usually proves that a little extra money buys a lot of extra value.

Furthermore, you enjoy many advantages from the better barn during all the years you use it—the time and labor you save through good arrangement; the higher production you get from the stock it shelters; better returns from the amount of feed fed; the value that a good set of improvements adds to the farm; and the personal satisfaction it gives to the whole farm family.

How much one is justified in spending for a barn is a subject on which no broad and definite information is available. One thing is sure, however, and that is that more farms are under-capitalized than over-capitalized in this respect.

Earn More With Better Buildings

A study of Minnesota farm buildings, by the University of that state, gives some information of interest along that line. The object was to check the labor income made on the farm with the value of its service buildings. Forty dairy farms were studied, on which the barns were fair, averaging about 15 years old. Their annual cost was taken as the sum of the insurance, taxes, depreciation, repairs, painting and interest on the investment.

Comparing the ten farms with highest and the ten with lowest labor earnings, it was found that on the ten low farms labor earnings averaged \$1,718 and annual building costs \$720. On the ten high farms, earnings were \$2,852 and building costs \$1,121. Thus, with annual building costs only \$401 higher, labor earnings were \$1,134 greater.

The conclusion drawn by the investigators is this: "It should be more generally recognized that suitable farm buildings may serve as an investment which will return a profit in many cases. Too often the standards of living on the farm are lowered by inefficient, inadequate buildings and in addition the business is handicapped over a period of many years. This study shows a distinct advantage for the farm operator who has adequate buildings."

Left—View in the drafting section of the Louden Barn Plan Department, where many thousands of barn plans have been made during the last 30 years.



The Louden Barn Plan Department

First In the World Of Its Kind

To help you visualize the Louden Barn Plan Department we show these views taken at the home office in Fairfield. The above view shows a section of the drafting department, where the plans for thousands of barns have been worked out and drawn up for blueprinting.

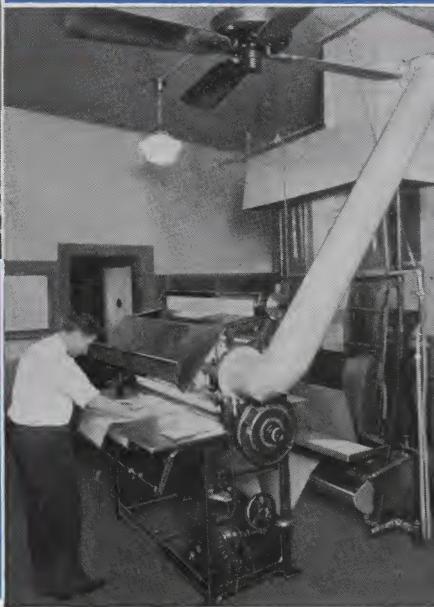
The men who make these plans are specialists at this kind of work, the same as you are at farming, or whatever your occupation may be. Although farm bred, most of them would make a great many mistakes the first year if they tried to run a farm. But let them check over the plans of a barn, or other livestock building, made by someone who has had little or no experience at that kind of work and they can usually point out at a glance a good many things that are wrong and suggest changes that had better be made. That is only the natural result of concentrated study and experience.

Specialists—At Your Service

Barn planning is a specialized type of architectural work, recognized as such by the profession itself, as is evidenced by the fact that we are privileged to serve many of the country's leading architects in a consulting capacity when their commissions include farm livestock structures.

You couldn't buy—anywhere, at any price—better or more experienced plan help than that offered you by the Louden Barn Plan Department.

Right—Years ago our blueprints were made by sunshine, on the roof of the factory. Now this modern blueprint machine makes them for us on bright days and dark. It automatically exposes, develops and dries the prints.



The Louden Man : : Is Trained to Help You

For many years we have had a field organization of traveling representatives.

Many of our good customers are men who would rather talk than write. If you are so inclined, just a post card to us saying: "Have the Louden man stop and see me," is all you need to write, as a rule. The Louden man will stop in—we probably have one near you—and you can discuss matters direct with him. There is no obligation in this at all.

He gets your ideas and you get his—and incidentally you will find that he knows barns and barn equipment.

While he is on your place he can see the lay of things and can send us the information that he knows from experience our Plan Department will need, if you want plans. It is especially convenient to have him call on remodel jobs, so he can take needed measurements and advise us fully on present construction.

Consult a Louden Man

At the left you see a group of these men in the school room here at the factory, for their annual week of training and study—a Louden practice of long standing. Most farmers know how much good they get from exchanging experiences with others. So it is with us.

At these meetings each Louden man's knowledge is broadened, and each becomes a more valuable man to consult on matters of livestock housing.



School for Louden men. View shows the last one attended by William Louden. Aged almost 90, he occupies his customary seat in the front row (at extreme right.)

The PIONEER » » »

» » » Of Better Barns

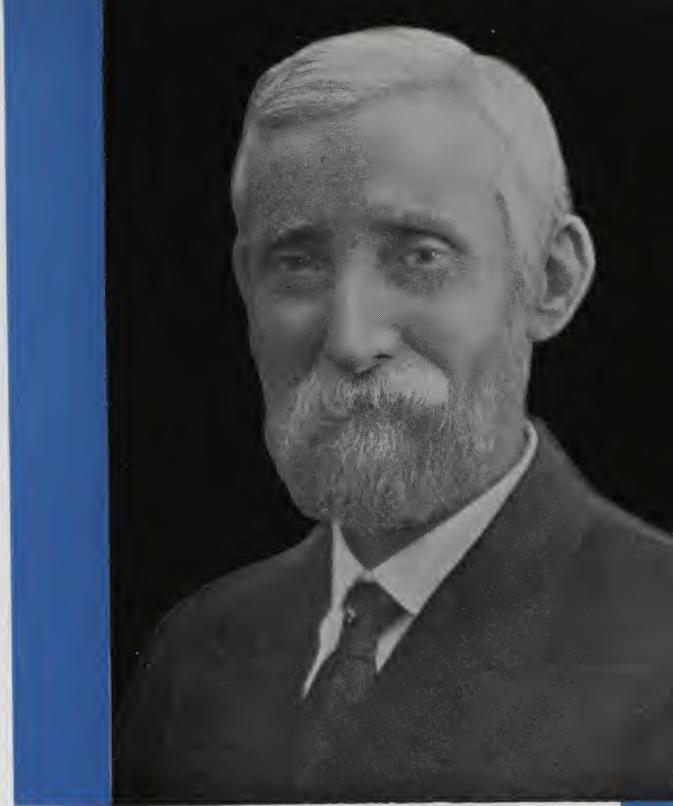
Away back at the close of the Civil war, near the little town of Fairfield, Iowa, there was born in the mind of a young man an idea that was destined to have a tremendous effect on barn construction and the handling and housing of livestock.

The young man was William Louden, founder of this Company, and the idea was the hay carrier, now found in practically every hay mow. This invention made it practical to build barns with enormous mow capacity—sufficient for storing a season's supply of hay and straw.

With that idea William Louden began a long career as inventor and manufacturer of labor-saving barn equipment. Other inventions followed, all for the barn. Letters came in increasing numbers from farmer customers, asking advice on barn building problems arising from use of his new products.

He answered them all, as best he could. But no one could see better than he the need of farmers for specialized barn planning help.

When, in 1907, he established the Louden Barn Plan Department, he fulfilled a long felt desire. Because of the great influence of this original service in improving our farm live-stock structures, William Louden will long be remembered as the far seeing pioneer of better barns.



William Louden
1841 — 1931

The Biggest Barn Plan Book In the World

Has Never Been Published—It's Here In Our Files

We have learned from long experience how seldom a man can find in any stock book of plans a barn that exactly suits his needs. Almost any plan he can find needs some changes to adapt it to his requirements.

Types of construction vary in different sections of the country. Varying local, city and state regulations for the production and handling of milk, also the grade of milk he is producing and his method of disposing of it, have their influence on his barn plans.

He may want a general purpose barn for cows and horses, or a strictly dairy barn. If general purpose, how many cows and horses must be housed? There are many combinations of these numbers.

Likewise, if strictly a dairy barn, how many cows must be accommodated? And how about pens? Will the bull be kept in the barn or in a separate shed? Some men want more cow pens than others—for freshening cows, sick stock, test cows.

How about calf pens? Some dispose of their bull calves early. Pure bred breeders usually keep them longer, consequently need more pen space and possibly some young stock panel.

No End of Variations in Plans

Some farmers have silos and some do not. The size of the feed room needed varies. Some want an adjoining feed room. Others want to use the mow, with chutes to the floor below.

The height of the side wall varies with the locality, the size of the herd, the kind and amount of roughage to be stored. Some want bank barns and others do not. Some want a driveway into the mow and others don't. Some want no mow at all and others do. Some want a barn plan that anticipates additions.

Then there are matters of preference, such as heading cows in or out, which affect general arrangement.

Whatever the plan, it must be adapted to the location of the barn and other buildings, barn lots and fields,

and to the requirements for unloading hay and feed, filling the silo and disposing of the manure. Almost any ready-made plan has to be changed around for some reason or other.

These are by no means all of the things that affect the plan of the barn, but they are sufficient to make plain two points: (1) There is small chance of obtaining a plan from any plan book that exactly suits your needs; (2) Even though you find a plan that approximates your needs and likes, you are going to need plan help to revise it to suit your purposes.

We have been making plans for barns of all kinds for nearly 30 years. Herein are only a few suggestions but our files contain thousands of plans. We can't afford to print them all in a book for general distribution and that is why the biggest barn plan book in the world has never been published.

How You Can Use These Plans

But we are continually using these plans for the benefit of those farmers who appreciate their value and care to use them, and here is how we do it:

If you intend to build a barn, tell us the number and kind of stock you want to accommodate, your preference regarding heading in or out, type of roof, number and kind of pens required and all such necessary information. We will then send you blueprints of floor plans that seem to meet your needs. If any plan suits you, you are welcome to use it and we will send standard cross sections to go with it.

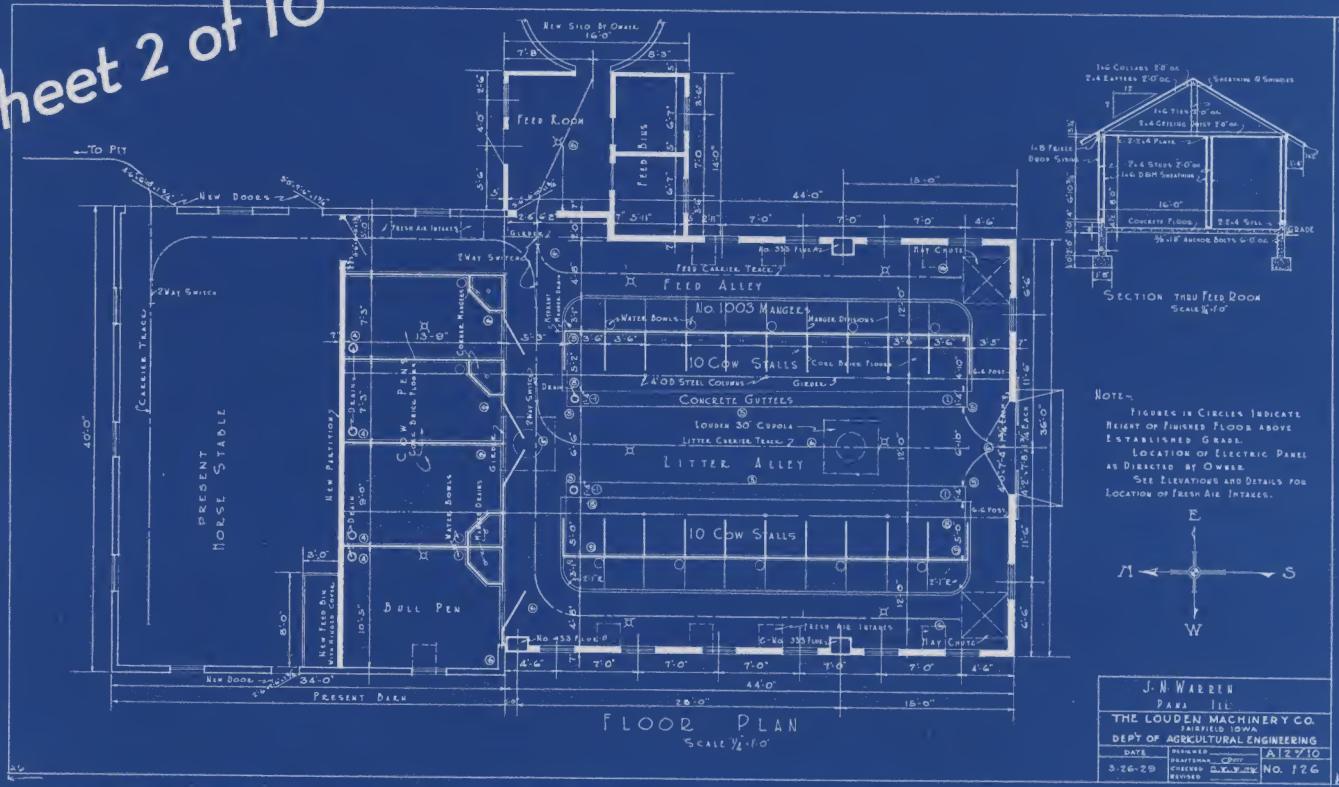
If changes are needed in a plan that almost suits you, we will make them and send you a blueprint of the corrected drawing with cross sections from which any good carpenter can build.

There has never been any charge for this service and there is none now. We invite you to use it without obligation.

Sheet 1 of 10

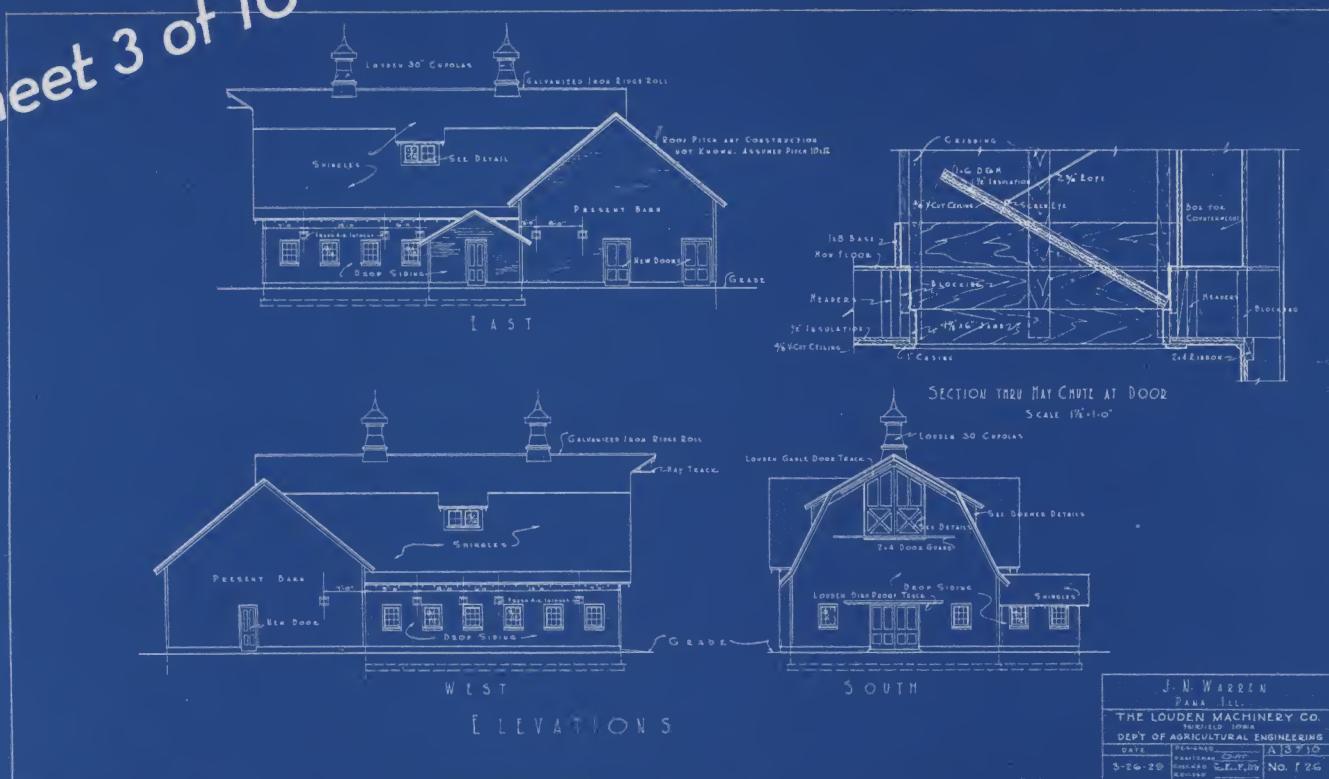
The three drawings reproduced on these two pages give an idea of the thoroughness of Louden complete working plans. These are small reproductions from 17" x 30" blueprints and consequently are a little hard to read. The entire set of plans on this job consisted of ten sheets — the three sheets shown and seven others showing details of construction. Above is the first sheet, or the foundation plan, which shows where to locate the foundation, doorways, footings, gutter and pen drains, water lines, hydrant and risers for the water bowls.

Sheet 2 of 10



This second sheet is the floor plan. It shows the floor plan arrangement, dimensions of pens, alleys, gutters, stalls and feed room; location of columns, drains, water bowls, electric lights, feed and litter carrier track, fresh air intakes, foul air outtake flues, section through feed room, etc. The small circles with numbers inside show the proper floor height, in inches, above grade.

Sheet 3 of 10



Sheet 3 shows elevations of the barn as it will appear when finished. Also a detail of the hay chute door. Compare these drawings with the picture of the finished barn, shown on the next page.

WHAT ARE Louden complete plans and who are they for?

Louden complete plans go into far more detail than simply floor plan and cross section blueprints.

To give you some idea of what they are we show a part of a set of such plans on these two pages. These illustrations are small and hard to read, because so greatly reduced from the regular blueprint size.

This particular set of plans was for an addition to an old barn and consisted of ten large sheets. We can take space to show only three of them—the foundation plan, floor plan and elevations. The seven other sheets consisted of detail drawings showing proper methods of framing; cross section of the selected roof construction with sizes of members; end bracing; door and window details; hay door construction; cross section of floor and all other such important details.

It is a poor contractor indeed who cannot do a perfect job, from the ground up, with these explicit directions.

Complete Specifications Included

Along with the plans we also furnish a complete set of typewritten specifications—valuable also for your protection. In them is specified the kind and quality of all material to go in the building and the methods of construction to be employed. They state exactly what the contractor has to do, so there can be no question or argument about anything. These specifications are fully as valuable as the plans, to assure yourself a properly built barn.

It requires experience to write a good set of specifications and here again our nearly 30 years of this kind of learning stands you in good stead.

When a contractor takes these plans and specifications, makes a bid on the job and you accept it, they form a contract he must follow to the letter.

Reliable contractors, of course, are always glad to bid on such plans and specifications because they know exactly what they have to do and that competitive bidders are figuring on the same basis. You can safely accept the low bid. The difference between high and low bids commonly exceeds the cost of the plans and specifications by a wide margin. This is the best way to contract for a building.

If, instead of contracting, you hire labor by the day, the plans pay for themselves. The work proceeds more rapidly and less time is wasted, from the pouring of the concrete to the finish. There can be no reason for mistakes that waste time and material and cost extra money to rectify.

The Best Way to Go About Building

It used to look foolish to the ordinary farmer, to obtain such thorough plans simply to build a barn. But the picture has changed. Farmers now are better business men and more and more they see that building hit and miss is no good—that the wise and safe thing to do is to get complete plans first.

Spending a little money for complete working plans and specifications, then placing the contract in a way that not only assures good construction but the lowest building cost, is sound practice for anyone, but particularly for the man who has no money to waste.

When you see the Louden man, ask him to tell you more about this service and its low cost. Or write us for further details.

And Here Is the Barn » »



Built From the Foregoing Plans

We'll let the owner do the talking:

"I have been thinking for the past 6 years, since I built my barn, that I would write you about it. But you know how we farmers are about writing.

"My barn is the handiest one around and I give your firm and your Louden man credit. The plans you made for me could not be beat. A farmer could build his own

barn from them, they are so easy to follow.

"I had three sets and put them all out to contractors for bids. There was \$1200.00 difference between the highest and lowest, so that saving came in handy.

"The equipment I purchased from you is still as good as when I got it. All in all, I think highly of your firm."

—J. N. Warren, RR5, Pana, Ill.



HOWARD WORTHINGTON Builds His Own Barn From Louden Working Plans.

Up near Pleasantville, Iowa, lives Howard Worthington, an up-and-coming young farmer it's a pleasure to meet. Farms 910 acres. Keeps him stepping.

"I didn't have much money but the old barn was about to fall down," he said, "so I had to build this new one. After talking it over with our Louden man I decided

to get complete working plans from you. I'm no carpenter, nor were the two men who helped me, but those plans were so complete and easy to follow we built the barn ourselves."

Above you see the result. Inside, it's Louden equipped, too. "I got a lot of barn for my money," Mr. Worthington says.



Howard Worthington
Pleasantville, Iowa



O. J. Ramse
McIntosh, Minn.

A picture of progress, far up in Minnesota. O. J. Ramse's old log barn and his modern new one, built from Louden plans. "Well pleased with everything," he says.



Just What Do Folks Think Of Louden Barn Plan Help

It is easy for us to talk a long time on the subject of barns and barn planning. Because in our business we deal with barns every day, planning the arrangement of new ones and the rearrangement of old ones in connection with the installation of barn equipment and ventilation.

Our object in emphasizing the importance of a well planned barn and pointing out things to think about before you build has been to help you avoid mistakes, save money and have the kind of barn you ought to have for the profitable operation of your business.

In telling you also of the good help you can get from the Louden man who travels your territory and from the Louden Barn Plan Department, some readers may get the impression that we praise ourselves most highly when, as a matter of fact, we try to be fair and not exaggerate.

So we are going to let others talk for a while now—a few of the folks who got in touch with us before they went ahead and built.

Not a Thing He Would Change

L. M. Waggoner of New Carlisle, Indiana, may as well be the first. "After using the barn I built from your plans for over three years," he says, "I cannot see where I could make one change and make it more convenient. It is just fine in every way—the only thing I ever built that I did not see some mistakes in about the time completed. Certainly if I ever have to build another barn I want you Louden people to help me plan it."

Granite Falls, Minnesota. Miller Frederickson speaking. "I want to say that I appreciate the service the Louden man gave me in planning my barn, as I now see where I would have made a number of mistakes had I gone ahead with the arrangement I had decided on before I talked to him. I certainly like the barn you helped me to plan."

"You helped us with our plans when we built our barn nearly 20 years ago," says S. B. Tallman of the Washington Jersey Farms, Washington, W. Va. "We have never seen a barn and equipment to the present time that suits us so well as our own and we have been in modern barns in many states and in part of Canada. It gives us pleasure to say a word of praise for your plan service and equipment."

Says G. B. Barber of the Barber Dairy Company at Bath, N. Y.: "Our barn, for which you so kindly prepared specifications some months ago, is completed and the cows are in it. We are more than pleased and can say that your representative on this territory gave us 100% service."

From New York also comes this—from Mr. A. Gillespie of Troy: "I want to express my satisfaction for the interest you took in planning my barn, the valuable advice received and your uniform courtesy throughout the erection of the building. If I can ever recommend your efficient service to anyone, I shall certainly do so."

Her Barn All She Hoped It Would Be

Quite often we have an opportunity to be of service to ladies in connection with farm building problems. Mrs. M. K. Reynolds of Marquette, Michigan, has been kind enough to express herself as follows: "My barn is nearly a year old now and has proved to be all that I had hoped it would be. I feel that I got more than my money's worth from your firm right from the beginning—you have all been so courteous and helpful in every way."

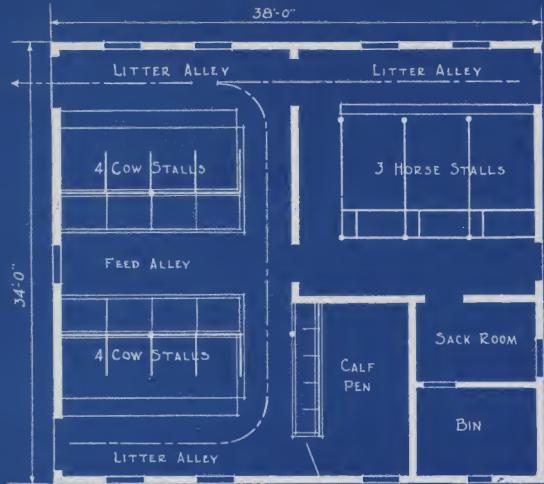
Dropping down now to Tennessee, W. E. Hayes of Lewisburg says of the barn we planned for him: "I built a barn designed by you and equipped it with your goods. I consider it one of the best cow barns I ever saw and recommend your services to anyone who is building and equipping a barn."

Now to Underwood, N. D.—to hear from Alfred A. Keel. "This summer I completed my barn under your plans and I just wanted to tell you that I am more than pleased. I hope that all who are interested in barn plans or barn equipment will write you before they build or buy equipment."

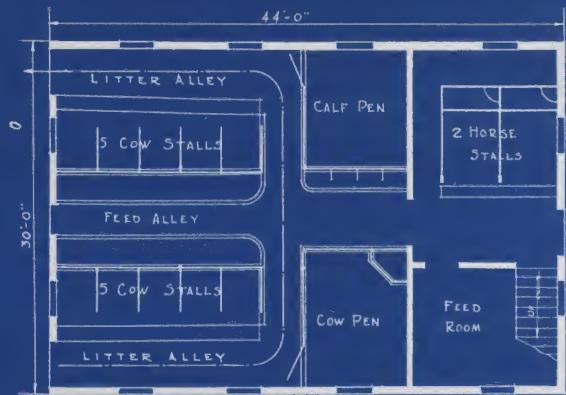
These are typical expressions. We could fill many more pages with them but lack of space forbids.

With so many things to think about, when building a barn or making the old one modern, you too will find the comments, criticisms and suggestions of Louden Barn Plan men very helpful.

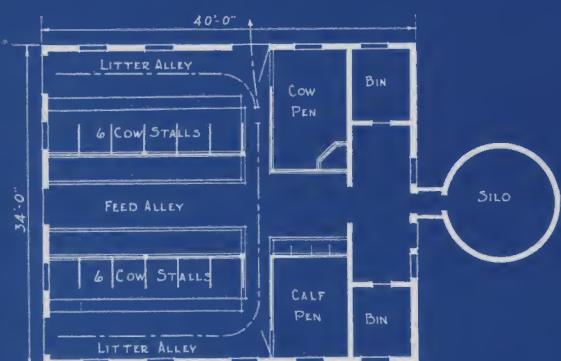
Since the proof of the pudding is in the eating, ask us to send plans or check yours before you build. Judge for yourself. It costs nothing—obligates you to nothing.



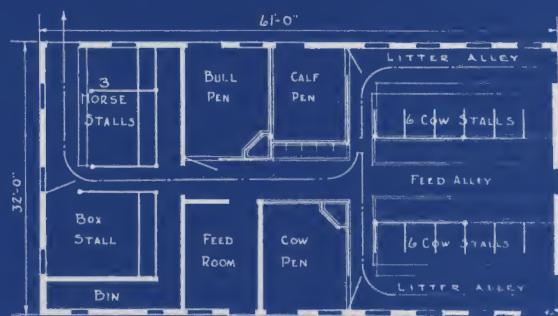
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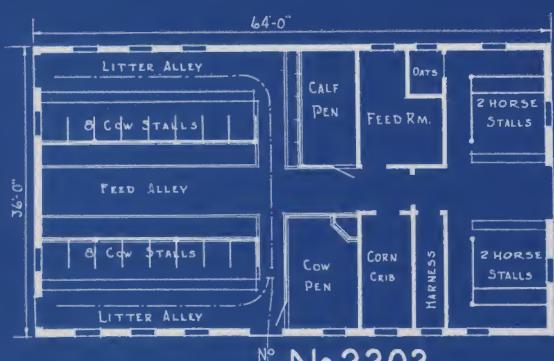
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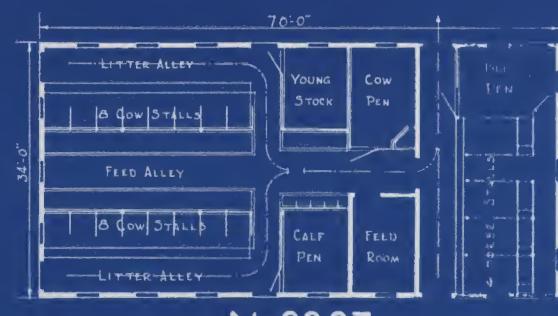
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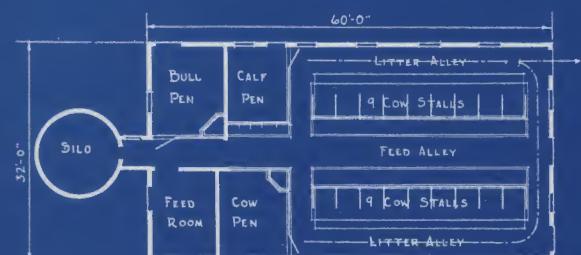
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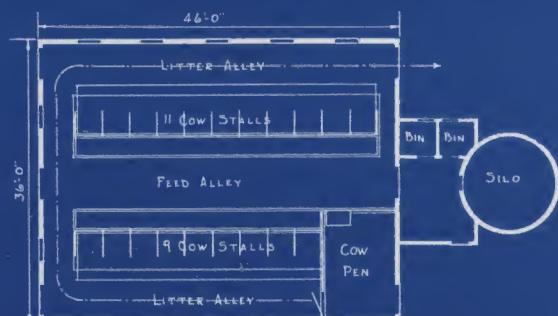
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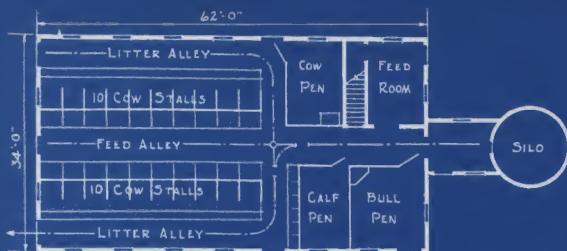


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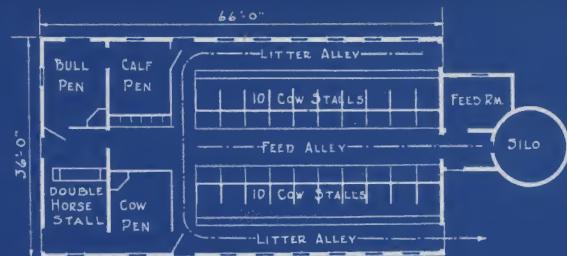


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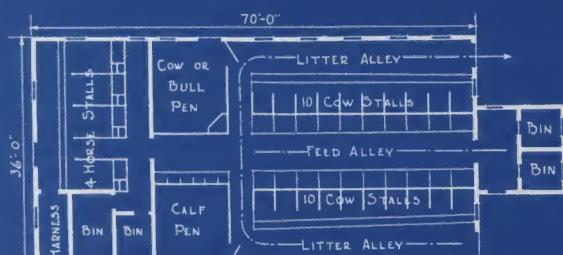
A Few Suggestive Floor Plans – Cows Headed In



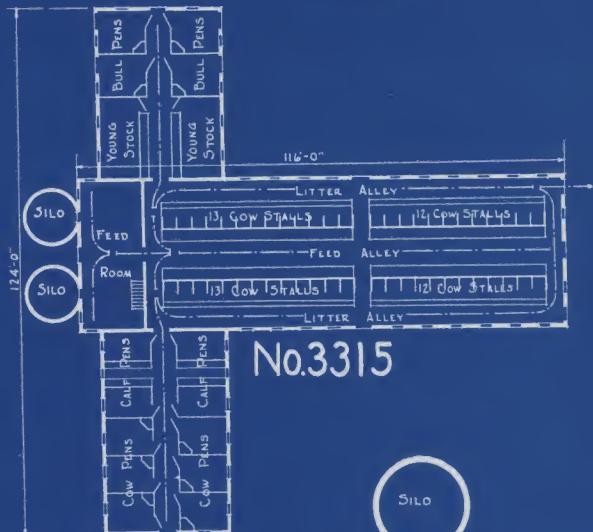
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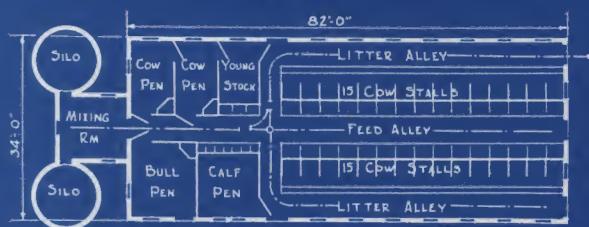
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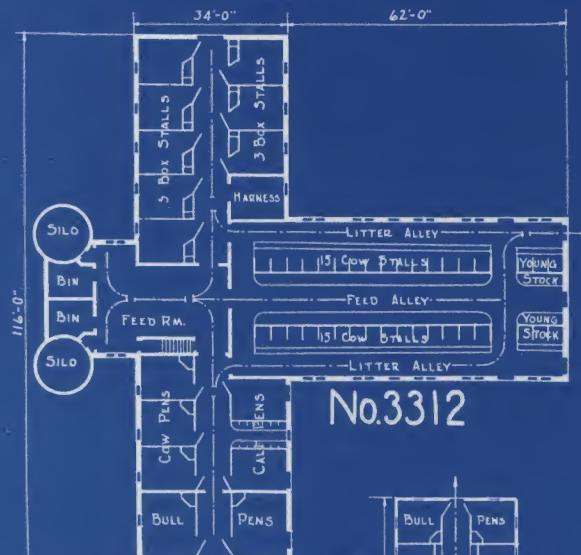
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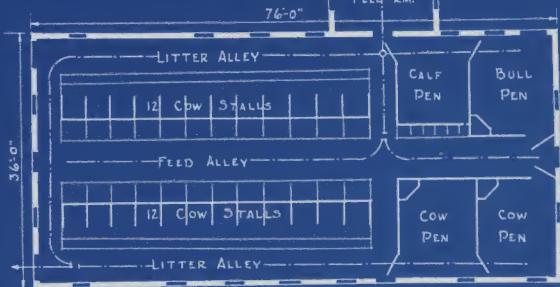
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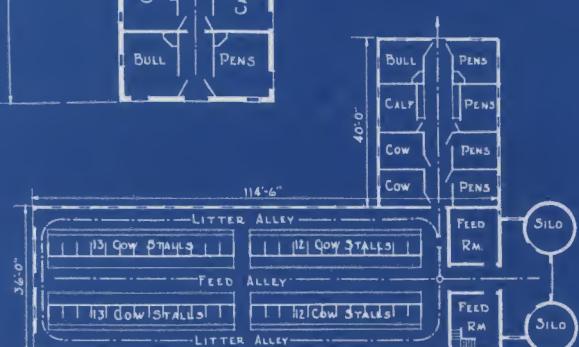
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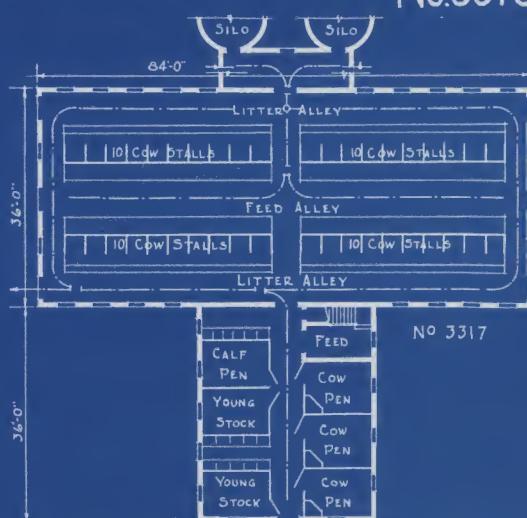
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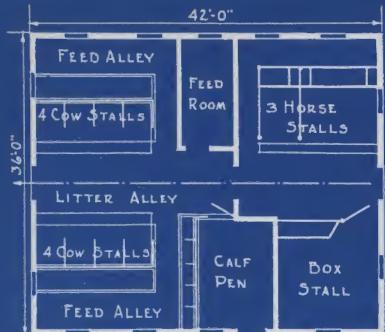


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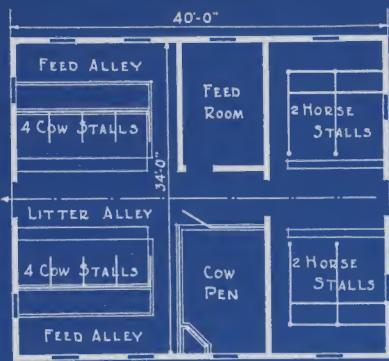


No.3317

A Few Suggestive Floor Plans — Cows Headed In



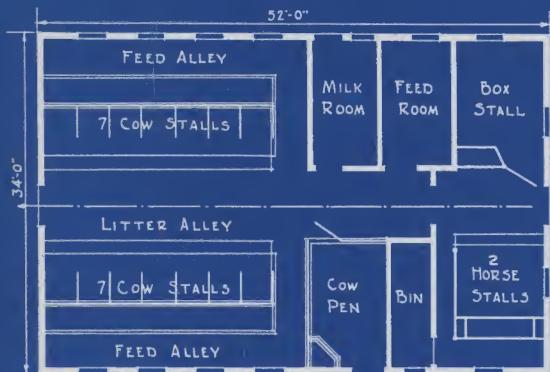
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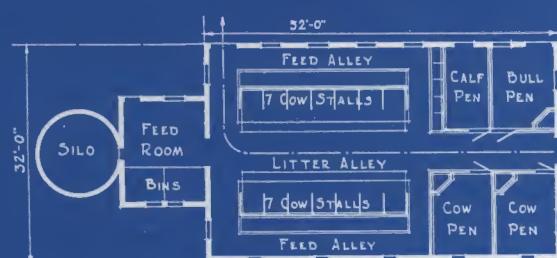
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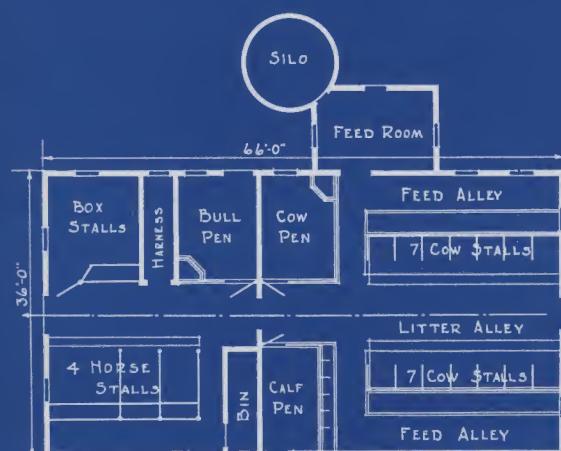
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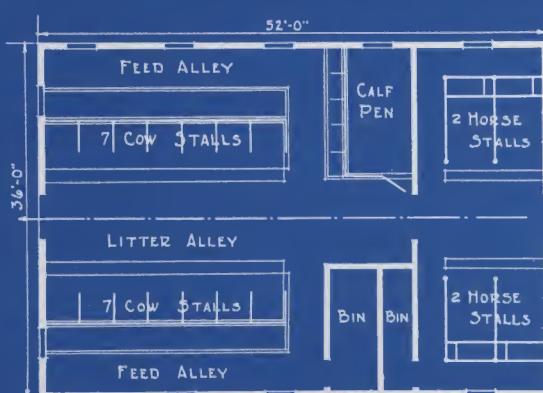
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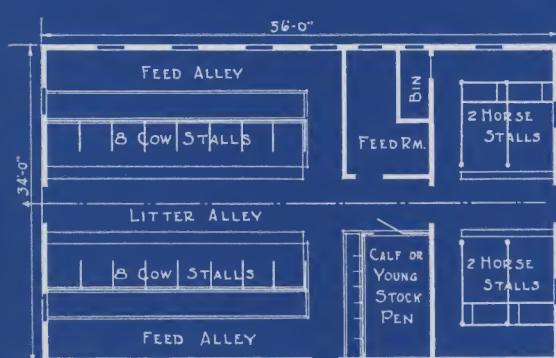
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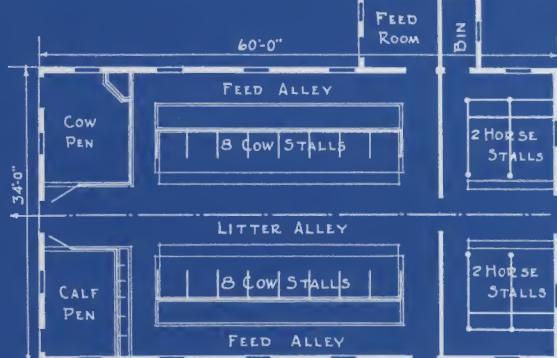
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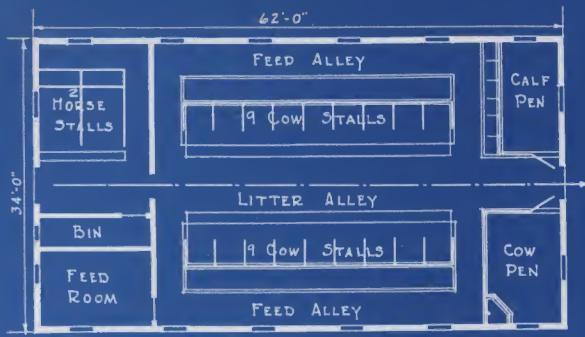


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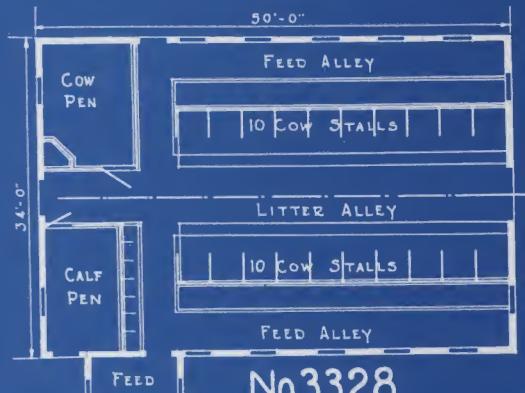


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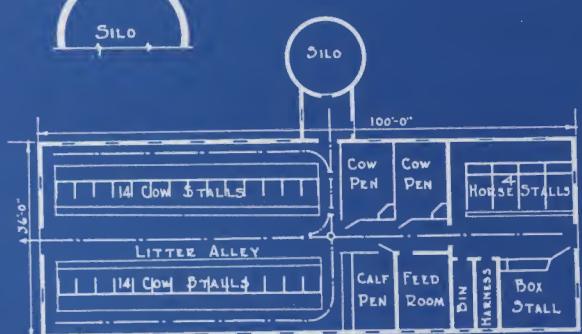
A Few Suggestive Floor Plans — Cows Headed Out



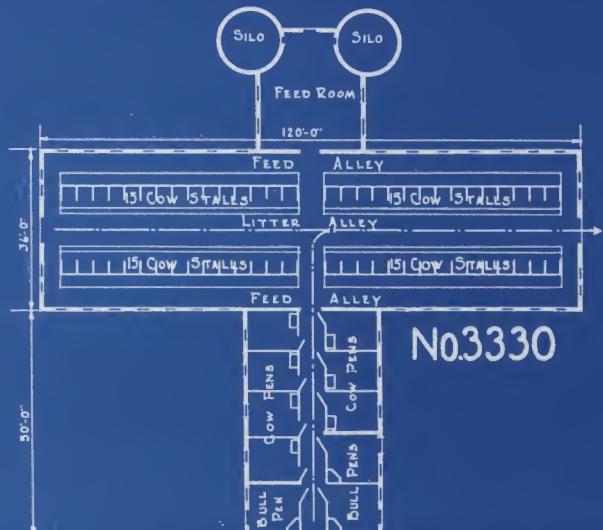
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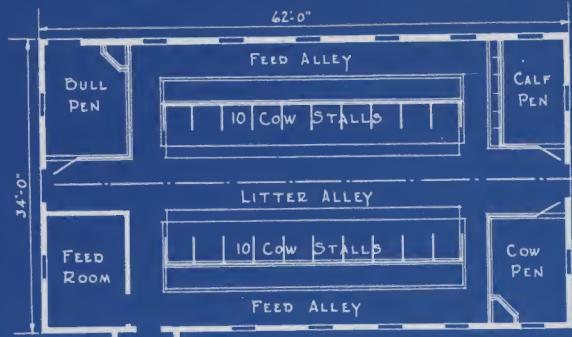
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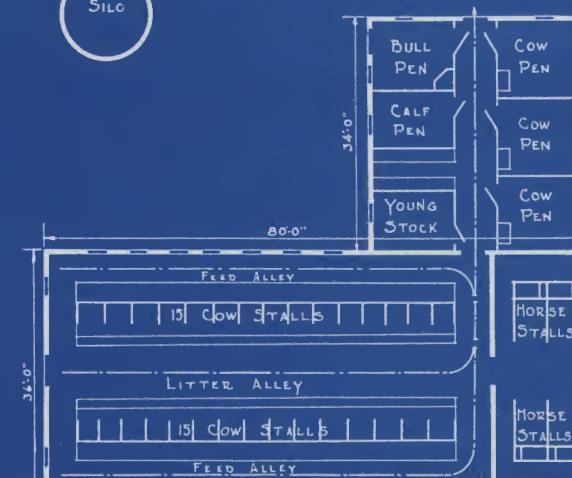
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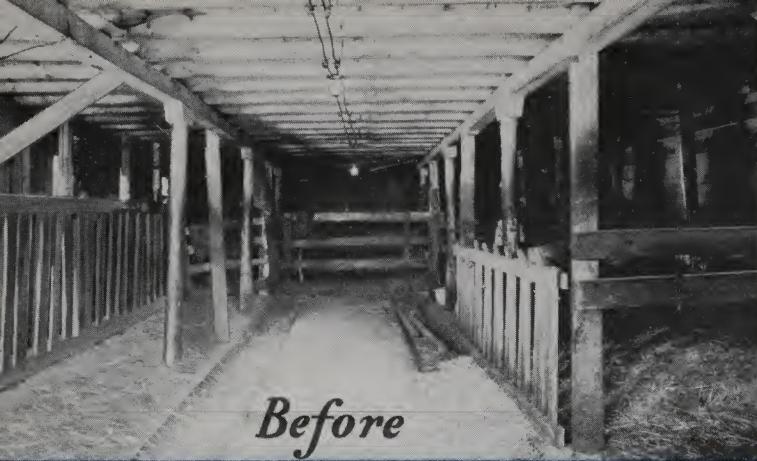


No.3333



No.3334

A Few Suggestive Floor Plans — Cows Headed Out



Before



After

A little remodeling, at no great expense, by Donald W. Haggart, Grand Island, Nebraska. "To me the contrast is greater than the pictures reveal," he says. "Everything is convenient, the work is easier, takes less time and it is easier to keep the barn sanitary. I am producing cleaner, better milk and feel like a real dairyman."



Before



After

It's the Same Barn—**Believe It Or Not!**

Remodeling again makes a whale of a difference. This time for R. A. Boyd, Guilford, Vermont. Above at left, the condition of his 60-year old barn before he fixed it up. At right, its present modern condition. All of us here at Louden's get a great kick out of helping bring about such surprising transformations.

Below is an idea for remodeling the old overshot type of barn, so popular in years past in some sections of the country. By closing in the overshot, as was done with this Pennsylvania Odd Fellows Home barn at Middletown, many square feet of floor space can be reclaimed from waste.



Perhaps You Can Remodel Your Old Barn



Many an old barn can be fixed up into one that is modern and thoroughly serviceable—frequently at small cost.

Louden field men can quickly tell what changes will be necessary, how difficult it will be to make them and whether the result will be worth the cost. There are times when it is best just to tear the old building down and erect a new one. But in many cases remodeling can be done satisfactorily and a good deal of building expense saved. More barns are being remodeled than built new.

Some old barns just need a few holes knocked in the walls and some windows installed, to let a little sunshine in. Others need insulation and a ventilating system to prevent condensation and take out foul, disease laden air. In many cases stinking old wood floors and equipment should be torn out and good, clean concrete and steel put in.

Many Ways to Fix Up

Perhaps the old barn can be retained for storing hay and feed and a modern addition built on to house the cows and young stock. Rotten walls can be cut off and replaced by masonry. A false ceiling can replace the one that's too high. Many methods can be used to transform old barns into practically new ones—cleaner, handier and better.

Perhaps the Louden man can draw up a suggestive plan right on the spot. If it isn't so simple he knows what measurements to take and what details of present construction are essentially important and can send this information to our Barn Plan Department on a special form which he carries. The problem can be carefully studied then until the most practical plan is arrived at. Blueprints will then be sent you, showing the best way to fix the building up and arrange it to suit your needs.

Some time ago Richard Connell & Son of Chippewa Falls, Wisconsin asked a Louden man to stop and see them about a barn they wanted to remodel. Two years later they wrote us as follows:

"We are writing to tell you about the wonderful job your man on this territory did in planning our barn, which was a remodel job where the cow stalls ran crossways.

"After two years' use we can say that there isn't a thing we want changed. We are more than satisfied and if you want to use this as a testimonial we are very glad to give you permission."

In the last 30 years we have had a lot of kind letters like that. We appreciate them all.

Get Our Free Suggestions

Every remodeling job is a separate problem and we have helped work out thousands of them. If you have one that seems a little tough and you could use helpful advice from some one with experience, don't hesitate to call on us.

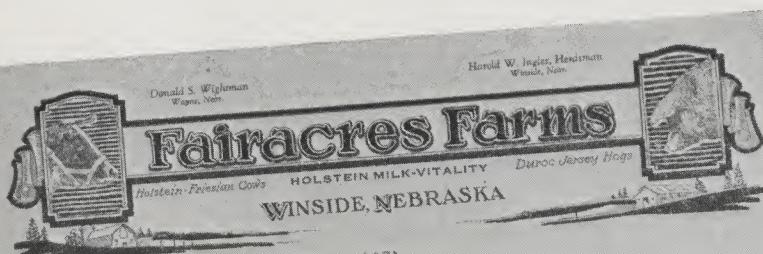
It doesn't cost you a cent; we feel that with the experience we have had we can be of real help and that's all there is to it. No obligation at all. We offer you a helpful service—not high pressure salesmanship. Write us and rest easy on that score.

A Louden man suggested to Floyd P. Sebree, Canton, Illinois, that he simply remodel his 76-year old barn instead of building new. Here is the result. Remodeled and equipped for \$800. Figure for yourself how much he saved over a new building. Needless to say, Mr. Sebree is well pleased.



At first glance this tumbled down old wreck of a barn, near Knoxville, Iowa, seemed gone beyond repair. But on checking it over the Louden man and the farm manager for the Brotherhood of American Yeomen found that things were not so bad after all. The lower view shows the good little barn they made out of it.

Complete a Good Barn by Installing Good Equipment



Louden Machinery Company
Fairfield, Iowa.

Gentlemen:

We have used other barn equipment before we put in Louden products. Maybe we had the idea that we were saving money. I wish now we had started with Louden equipment. We would have saved money in the end and had a more uniform interior for the barns. Our barns in the future are certainly going to be Louden equipped!

Not forgetting a good word for the equipment other than the barn furnishings. Your other products, from cupolas to steel tubing, stand up and wear.

One of the biggest things that sold me on Louden was the personal and intimate interest which the territory man takes in a job. His idea is not to sell the job and then dodge around the corner for the next ten years. Your salesman in this district is counted as one of our mighty good friends and, believe me, he certainly is willing and anxious to help us with our equipment and building problems!

Very truly yours,

The common statement everywhere that "Louden makes good stuff" gives a lot of satisfaction to us. But when we receive letters every now and then, like the one at the left from Mr. Wightman, our satisfaction tops the market.

All of which leads up to the point—when you've planned and built a good barn, what about equipment? You'll want complete equipment of course, or as much as you can afford right now.

Stalls and stanchions because they're more sanitary and comfortable and the cows do better in them; water bowls because they do boost that milk flow so you get your money back and more very quickly; feed and litter carriers to save thousands of steps and hours of time and daily drudgery. Other equipment for equally good reasons.

Buy Increasing Satisfaction

Even if good equipment does cost a little more—frequently Louden equipment costs no more—buy that kind. You will always be proud of it. You will always be satisfied, because it does what it is supposed to do—better and longer. Satisfaction goes up—not down—with good equipment.

Take steel stalls. They go into the concrete—we think they should, at least, or we wouldn't be selling that kind exclusively after all these years. You don't want to have to tear them out of the concrete after a while and replace them, because of getting an inferior steel.

Your steel pens. Don't get the kind of steel fillers that even a calf can bend, or that can be kicked right out of the top and bottom rails.

Litter carriers. You may have seen outfits standing in disuse. Cheap in the first place—expensive in the end because the end came too soon.

By all means complete a good barn by installing good equipment. We recommend Louden of course but—we also guarantee it.



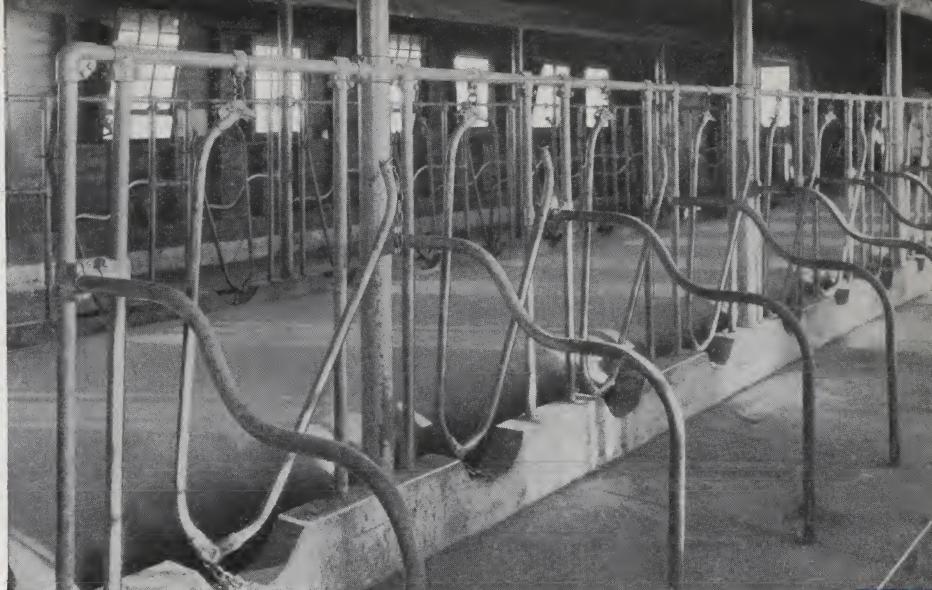
Partly Louden equipped barns of D. S. Wightman at Winside, Nebraska.

Burned Out Twice

**Tough luck
BUT--there
is one thing
Mr. Dugan
can smile
about—**



Amie Dugan



His Original Louden Equipment Still Serves

August seems to be a jinx month for Amie Dugan, Vevay, Indiana dairyman. In August 1926 the barn he had remodeled and nicely equipped with Louden steel stalls and stanchions was struck by lightning and burned to the ground, with 75 tons of hay in the mow. No live stock were lost, fortunately, and the Louden equipment came through the fire in such shape that Mr. Dugan simply set it up again in his new barn, as shown in the picture above.

In August, four years later, spontaneous combustion and Mr. Dugan's second barn was reduced to a total loss. And again his Louden equipment came through. It is now doing duty in his third barn.

"Send me a gallon of gray enamel," Mr. Dugan wrote, "and you won't be able to tell it from new. I didn't think any equipment in the world could stand what mine has gone through."

Gentlemen:

We have used our Louden Litter Carrier every single day for over 20 years. We have never had less than 100 head of cattle, so handle plenty of manure.

In all this time we have not had one cent of expense on the carrier, which ought to be proof to anyone that it is a real outfit.

Emil R. Risty

Brandon, S.D.

National Military Home,
Kansas.

Gentlemen:

The Louden Water Bowls we purchased last year are giving complete satisfaction and have been a great aid to us in helping maintain a good milk flow during the winter months.

The very first morning after we put them in the cows gave 5 gallons more milk than the preceding morning. We weigh all our milk and at that time were milking 43 cows.

Coburn Hall,
Supt.

Carlisle, Iowa.

Gentlemen:
I installed a Louden Hay Sling Carrier in my barn when I built it in 1893.

I used it until 1911 and my renter has used it every year since. Now, after 36 years, it still does the best of work.

Francis Bender

Hundreds of letters like these in our files



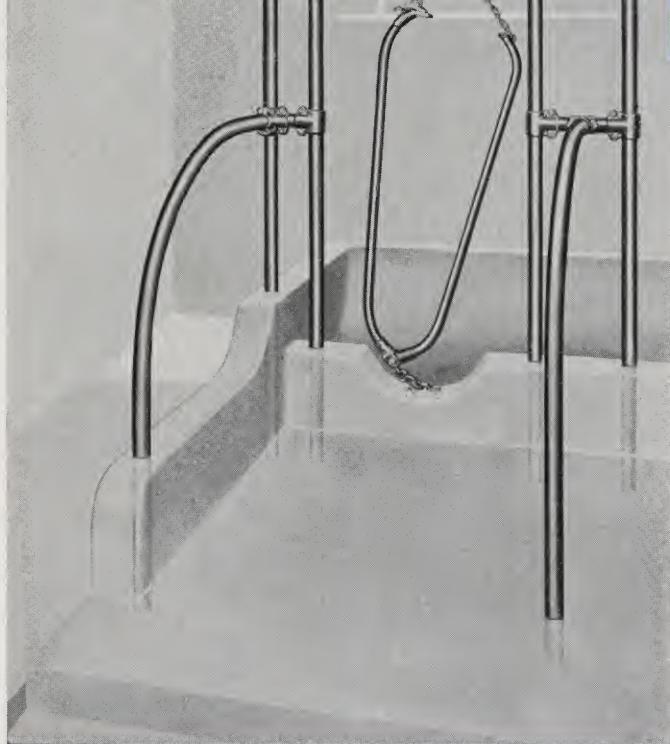
These Louden Stalls Have Been Used Every Day for Nearly 30 Years » »

After nearly 30 years' use in the Elmhurst Dairy, East Aurora, N. Y. these Louden stalls and stanchions appear good for another 30 years.

You would never know it, but the Louden stalls and stanchions on one side in the new dairy barn at the School for Girls at Mitchellville, Iowa, are the same ones used in their old barn for nearly 25 years.

Hundreds of such old installations are the best proof in the world that it pays to buy Louden.

Stalls of All Kinds In the Louden Line



A few and only a few are illustrated on these two pages.

At the left is the Louden No. 812 Double-Post Stall. Doubly strong; highly sanitary; most widely used steel cow stall ever built.

A similar stall with side-post instead of double posts costs less and gives excellent service. Single-post style, for young stock and small cows, costs still less.

Arched Stalls, of tubular and U-Bar Steel. The No. 3018, on page at right, is of tubing. Very strong—extra end post, rigid connection between arches, sets right down in the concrete. The U-Bar type sells for a little less.

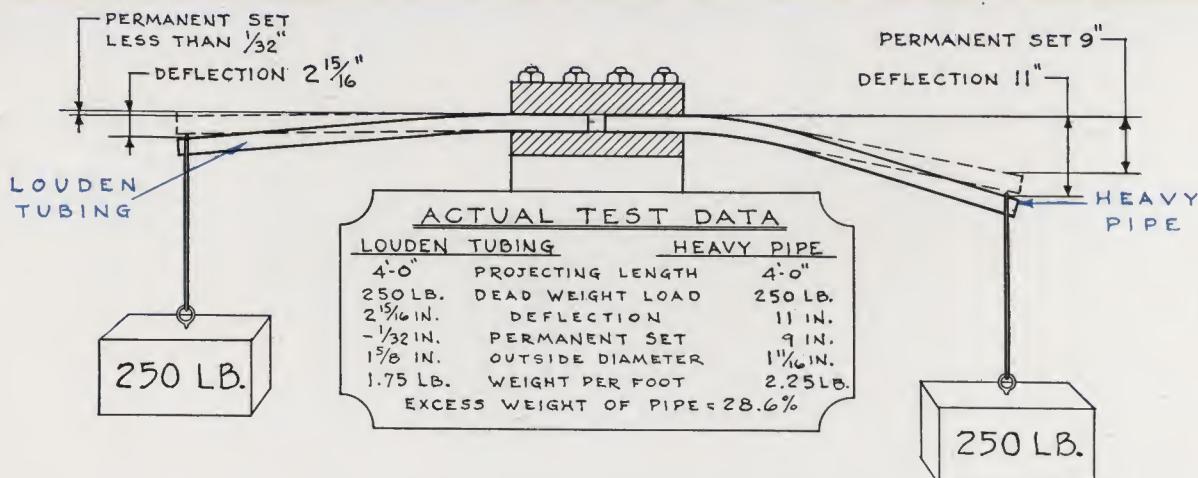
In Lever Stalls we have something to show you too. Stanchions that roll open—not slide. Amazing ease of operation; hence the name E-Z Lever Stalls. Choice of two styles and prices.

Milking Parlor Stalls—Tandem and Abreast types. Tandem type illustrated. A matter of choice on your part. Both are excellent stalls. Tandem most popular.

Hoard type stalls—an occasional customer won't have anything else. We have them. Also other types, including feeding stalls for beef cattle.

We'll be glad to send you full details and prices on any, or all of these stalls.

Louden Stalls Are Built of High Carbon Open Hearth Steel



Mass Doesn't Always Mean Quality

All tubing in Louden stalls, stanchions and pens is high-carbon, open-hearth steel. We have used it for years and continue to use it because of its demonstrated long life and extra strength.

The illustration above shows the result of a laboratory test of this Louden tubing and of heavy pipe weighing considerably more per running foot than our tubing.

Notice that our tubing is stiffer, bends less and springs back more nearly to shape after being bent. Naturally it is the best steel to use for stall posts and stanchion arms and for the posts, fillers and built-in stanchions in pens. Mere mass doesn't always mean highest quality—not by any means.



Try to Cut It

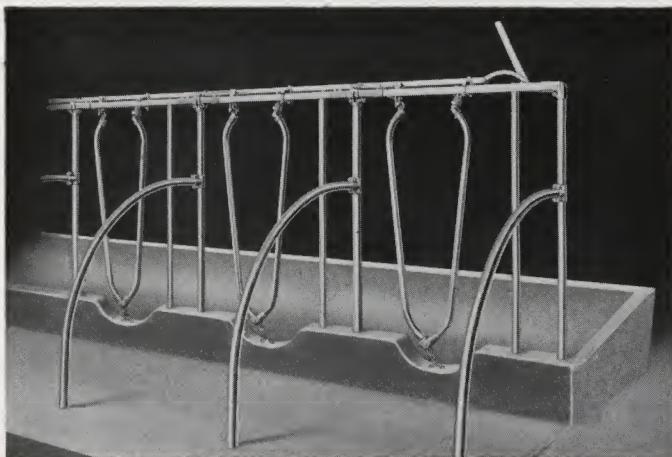


Try to Bend It



Louden Arch Frame Stalls

(No. 3018 illustrated)



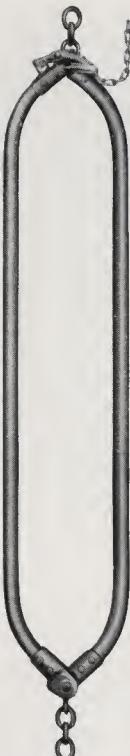
Louden E-Z Lever Stalls

(No. 3027 illustrated)



Louden Milking Parlor Stalls

(No. 3025 Tandem Stall illustrated)



No. 861

No better stanchion has ever been built. The utmost in simplicity, strength, sanitation. More 861 Stanchions in use than any other. Of finest high-carbon, open-hearth steel tubing.

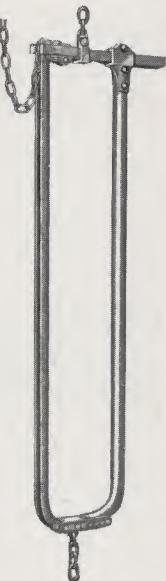
Comfortable Stanchions

Louden Stanchions have long been known for the greater comfort they give the cow. More comfort—more milk. We show but three of our many types. See them all before you buy. Louden Stalls are furnished with any stanchion you select.



← **No. 937**

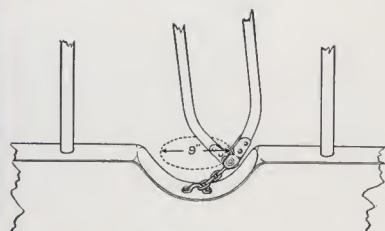
One of the several Louden Stanchions with hard-wood linings. Heavy hinge, cow-proof latch. Side bars T-bar steel. A very good stanchion.



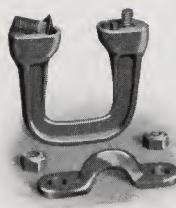
No. 3009 →

Closed top type, adjustable to six widths. Adjustments quickly made. One-hand, cow-proof latch. Side bars high-carbon, U-bar Steel. A favorite type with many farmers. Also made with wood linings.

**Why More
Comfort
In a Louden
Stanchion**



A pillory is a pillory, whether of wood or steel. Louden Stanchions, anchored by a single chain, have 4 1/2 inches radius play. Cows get up or down without repeated lunges. No bruised shoulders. No worried cows. Just cow-comfort.



Curb Anchor

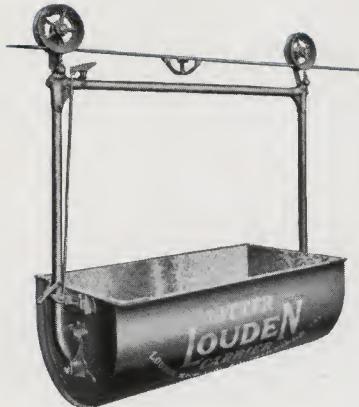
Improved Curb Anchor

What if the bolts that hold your stanchion anchor to the curb should rust, twist in two or give way for any reason? If it's a Louden Anchor, just slip in new bolts. Simple. Saves tearing up the concrete. Better have this good feature.



365 Days of Barn Cleaning— —Make Them Short and Easy

No. 721
Self-
Acting
Litter
Carrier
For
Wire Track

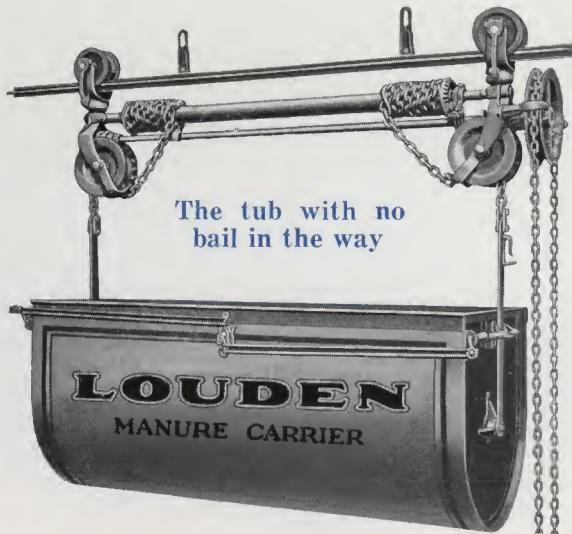


A good outfit for the man who has only a little money to put into a carrier—or no great tonnage of manure to take out. Fine for renters, as it can be easily taken down and moved. Holds 7 bushels. Operates on 0000 basic steel wire track. The load runs out, trips at the pile and the empty carrier rolls back to the barn door. Trip can be moved with a fork from the ground, to change dumping point.



No. 1459 Feed Truck

Do you feed silage and grain from a bushel basket? Why not take 20 bushels at a time with this easy-rolling truck? Saves its cost in shoe leather alone.



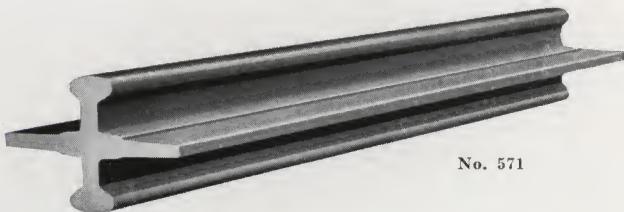
The tub with no
bail in the way

Louden Steel Track Litter Carrier No. 828

We call this big, powerful carrier the Emancipator because it is the great reliever of drudgery around the barn. You have to take out the manure 365 days in the year. It gets to be a grind when your machinery for that day-in and day-out chore is just an Irish touring car—sometimes called a wheelbarrow.

The No. 828 Carrier above is a real outfit—one you can count on for years and years of service. While these years will be just as long as usual, with this carrier to cut down the drudgery they will seem shorter and happier.

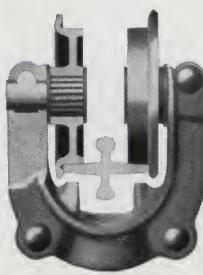
This is one of the best items and one of the best values in the entire Louden line. Furthermore, it is one of the most useful pieces of equipment you can buy for the farm.



No. 571

Heavy, Double-Flanged Rail

One big reason for the durable service and long life of the No. 828 Carrier, while carrying great 12-bushel loads of heavy manure, is this rugged, double-flanged rail of railroad rail steel.

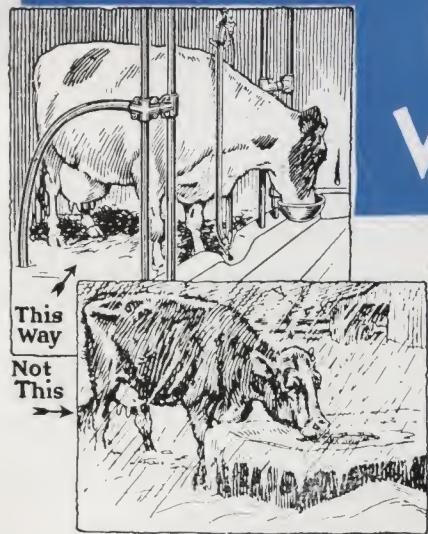


End view of wheels.

Roller Bearing Wheels

Loads roll easily on these roller bearing wheels. Not only that, but they keep the axle from cutting out and the wheels from becoming loose and wobbly after a short period of use. Look for bearings in the wheels.

Give Your Cows More Water



**Costs Little—
Makes Cows Give
More Milk**

The Geneva (N. Y.) Experiment Station says this: "Cows must drink 468 lbs. of water for each 100 lbs. of milk." Short cows on water and they will short you on milk. You can't beat nature.

What to do about it? Install Water Bowls. Why? Because the cows then will always have water when they want it and will drink more of it. Within 24 hours your money will start coming back—in extra milk—therefore CASH. Ask any water bowl user.

Everything for the Barn

Properly to illustrate and describe the entire Louden line of modern barn equipment requires a large book. Those about to purchase such equipment are always welcome to a copy of our general catalog on

Stalls and Stanchions
Feed & Litter Carriers
Water Bowls
Manger Divisions
Gutter & Manger Drains
Bull, Cow & Calf Pens
Swinging Cranes
Cupolas
Hay Unloading Tools
Barn & Garage Door Hangers
Bull Staff—Cork Brick
and many other items.

The Louden Machinery Co.
Established in 1867—Fairfield, Iowa
Branches: Albany - Toledo - St. Paul



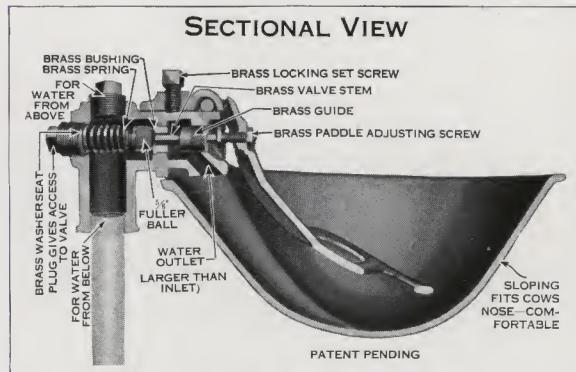
No. 1523

Louden No. 1523 Water Bowl



Lift paddle
to clean quickly.

This is our MasterMade Bowl. Its features would occupy a page of space. Very briefly, it is quick removable; rigidly held so cows can't rattle it; incoming water doesn't splash or squirt, which keeps floor dry; has quick adjustment for water level; takes water line from above or below; can be secured to steel post or wood. Send for literature with full details.



Sectional view No. 1523 Water Bowl.



No. 1439

No. 1439 Economy Water Bowl

This is a lower priced Bowl than the MasterMade and a mighty good bowl too. You'll make no mistake with either of them.

Carries the regular Louden guarantee.

**Louden
Has Planned
and Helped
to Plan**



**Many
of America's
Finest
Barns**



1
A glimpse of the dairy barn on Glen Cliffe Farm, Grafton, Illinois. Mr. H. H. Ferguson, owner.

2
The calf barn at Mr. P. H. B. Frelinghuysen's Twin Oak Farm, Morristown, N. J.

3
Complete set of buildings, Louden planned, for Mr. L. G. Kaufman's Loma Vista Farm near Marquette, Mich.

4
Horse stable owned by Mr. H. V. Foster, Bartlesville, Oklahoma. M. L. McCune, architect.

5
Maytag Farms, Newton, Iowa. Mr. E. H. Maytag, owner.

6
Horse stable on the estate of Mr. John F. Jelke, Jr., Milburn, Illinois. Anderson and Tichnor, architects.

7
In old Mexico. Dairy barns at Hacienda de Santa Barbara, owned by ex-president Calles.

8
And on dude ranches. One of the modern barns on the R. V. D. Ranch in Wyoming.

9
Dairy barn on Major Smiley's Fentonbrook and Hurlwood Holstein Farms, Great Barrington, Massachusetts, with driveway into third floor.

10
The modern milking parlor built by Mr. S. Forry Laucks on his Luxmont Farms estate, Wrightsville, Pa. DeLano and Aldrich, architects.



LOUDEN HORSE STABLE EQUIPMENT

A great many fine horse stables in this country are furnished with Louden equipment. However, use of this type of barn equipment is by no means limited to fancy stables, exclusively for horses.

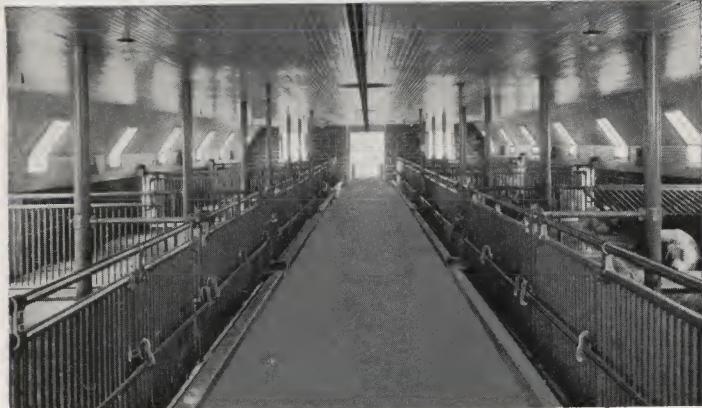
It is being used to advantage too in many ordinary farm horse stables and in barns for both horses and cattle.

Aside from the fact that this modern equipment is always more sanitary and convenient than wood, it very often costs no more.

Give a thought to fixing up for the horses. Check up on Louden Hay Racks, Feed Mangers, Stall Fronts, Stall Guards, Steel Columns, etc.



LOUDEN HOG HOUSE EQUIPMENT



The discussion of plans and plan service in this book has been devoted entirely to barns. Nevertheless we offer a similar service on hog houses. The information and advice we are in position to give in this direction is the product of long experience in the hog growing center of the country.

If, in connection with the plans for a hog house you are also interested in modern hog house equipment, we shall be glad to send full details concerning various types of Louden steel pens, feeding troughs, safety farrowing rail, swill and litter carriers and other equipment for successful hog production.

LOUDEN POULTRY EQUIPMENT

Before you buy a brooder house, oil brooder or other poultry equipment, send for a copy of our poultry catalog.

The Louden line of poultry equipment is replete with new ideas. All equipments are of demonstrated merit and utility.

At right, the Louden Brooder House—of weather-proof, insulating board. Designed to hover chicks like an old hen, conserve heat, save fuel, raise more chicks and grow them faster. Fully described in catalog along with Feeders, Fountains, Roosts, Nests, Laying Batteries, special Poultry House Litter Carriers, etc. A post card brings your copy.



THE LOUDEN MACHINERY COMPANY
FAIRFIELD, IOWA (Since 1867) Branches: Albany - Toledo - St. Paul

THE LOUDEN MACHINERY COMPANY, FAIRFIELD, IOWA

THE LOUDEN MACHINERY



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